EFFICACY OF ART BASED INTERVENTIONS FOR EMOTIONAL PROBLEMS AMONG CHILDREN AFFECTED BY EARTHQUAKE IN NEPAL

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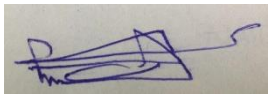

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Abstract

The earthquake of April 2015 left Nepal in a vulnerable state. Children represent an estimated 3.2 million of the 8 million people affected by the earthquake. The aim of the study was to examine the role of art in dealing with the long-term impact of earthquake on emotional problems in children in Nepal. A purposive sampling was adopted to select 454 children studying in 4th and 5th standard from four schools in Kathmandu Metropolitan City. Children completed the Level of Exposure Scale while the parents provided information about the emotional and behavioural difficulties of children using the Nepali version of Strengths and Difficulties Questionnaire (SDQ/ 4-17). The influence of gender, severity of exposure, socio-economic status and type of family in relation to emotional problems were also examined in the selected group. The results of Phase 1 show that conduct, hyperactivity-inattention and peer problems were higher in boys while girls had higher pro-social behaviour. Children belonging to lower socio-economic status were found to be at risk for emotional problems. Gender and exposure were also identified as predictors of emotional problems in children. For the second phase of the study, those children with high emotional problems (n=60) were selected for an art-based intervention consisting of nine sessions. Both the treatment (n=30) and control group(n=30) completed the pre- and post-treatment measure of SDQ. The results show that the children in the treatment group reported lower levels of emotional problems, hyperactivity-inattention and peer problems compared to the control group(Cohen's d : 0.50-0.80). In the final phase of the study, 12 children from the treatment group were interviewed to identify the elements of art that contributed to a change in the emotional problems. A thematic analysis revealed six global themes : a new schema, an expression space, drawing the trauma, reappraisal of trauma narrative, protective factors and future benefits. The responses of the children show that the inherent properties such as regulation and social connection promoted by an engagement in arts needs to be adopted as an effective mode of

trauma care. The findings also point to the possibility of using art-based therapy to overcome barriers of stigma and illiteracy which hinder the mental health professionals from implementing evidence-based treatments in the country.

Keywords: Child, earthquakes, emotions, mental health, Nepal, art therapy

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Chapter 1

Introduction

"It is important to give a better country to your children, but it is more important to give better children to your country."

- *Carlos Slim*(Education, n.d.)

The history of civilisation stands as a testament to the innumerable horrors that humans have undergone. It is no extraordinary feat that humans have been able to overcome them and continue their survival. Trauma breaks the normal routine of life and though we may adjust to the new changes, traces are left behind which in the absence of healthy release leads to suffering. While adults may find a way to come in terms with the pain, children who face such unpredictability are unable to find the normalcy in their lives without the help from the significant others.

The rapid changes that occur in humans have fascinated researchers for a long time. In the area of children, the focus has been mainly on infancy and adolescence while the stage in between the both which is middle childhood seems to be neglected. Theorists like Freud and Piaget described this stage as a plateau in development where the child is learning to fit in the lessons of infancy and preparing for the new stage to come (Eccles, 1999). One of the probable reasons for the lack of interest in this stage could be the slow rate of development as compared to the other stages. But recent theorists have started to acknowledge middle childhood as an important stage where major changes occur which sets the tone for future development (Tomonari, n.d.).

There is no universal cut-off point that clearly demarcates the age of middle childhood because each culture has its own way of defining the developmental stages. Though there may be disagreement on the boundaries of this phase, there is a consensus on how children at this stage strive to develop their identity through interactions with the wider social group. This time period marks the entry of children to the education sector. They start interacting with social actors such as teachers, peers etc developing their social and emotional skills in the process. The constant interaction with people of their own age group makes them compare their abilities and identify their level. Because of this social comparison, it is important that the children are encouraged to try despite failures as it has been noted that major shifts in school performance happens at this stage. Since this is the first stage where the lifelong interaction with society begins, helping the children learn the correct skills becomes an imperative task.

Though society has given more importance to physical health in comparison to mental health, mental health policies are being developed for both adults and children. Child and adolescent mental health(CAMH) is defined as, "the capacity to achieve and maintain optimal psychological functioning and well being. It is directly related to the level reached and competence achieved in psychological and social functioning" (World Health Organisation, 2005, p.7). Countries have focused on the importance of education for children but they fail to understand the role of developmental and mental disorders among children in influencing the education standards of the country. Emotional and learning disorders are considered as important risk factors for school failure (Patel et al., 2008). The improvement of mental health of children ensures healthy children who can maintain a balance between the pressures of the society and their own overall development. In the long term, the country receives healthy adults who are intellectually and emotionally sound. Thus, countries need to start focusing on CAMH to create a healthy workforce for the future.

Trauma in children

According to American Psychological Association (2008), "a traumatic event is one that threatens injury, death, or the physical integrity of self or others and also causes horror, terror, or helplessness at the time it occurs" (p.2). Trauma affects all ages, even young children who are unable to comprehend the occurrence (National Child Traumatic Stress Network, n.d.). The common reactions that traumatised children show include the development of new fears, separation anxiety, nightmares, sadness, loss of interest in normal activities, reduced concentration, decline in schoolwork, anger, somatic complaints, irritability etc (American Psychological Association, 2008). However, like in the adults, it is difficult to accurately predict the high-risk groups and the reactions in children after a trauma.

The sudden and unexpected occurrence of trauma makes it difficult for children to cope with the drastic changes that occur both internally and externally. An encounter with trauma alters the way children perceive the incoming signals from the external world (van der Kolk, 2003). During these difficult times, children rely on their parents or caregivers to help them deal with the emotions and adjust to the new changes. Research on resilience in children have shown a caring parent to be a protective factor for children against adversities. But when the adults themselves are struggling to deal with their own emotions, children are left to fend for themselves. With lack of skills and no support provided, traumatised children tend to feel that they are the source of problem or blame themselves for the calamity (Australian Child & Adolescent Trauma Loss & Grief Network, n.d.). Before the late 1990s ,there were no empirical treatments for childhood trauma but now focus has been given to this serious yet treatable condition (Schneider et al., 2013). According to Bath (2008), the three crucial elements therapists need to consider when treating trauma are creation of a safe environment, encouraging supportive relationships and teaching coping strategies.

Emotions in children

Depending on the physical and social development, various emotions emerge at different points of our lives. There is a pattern in which emotions develop in children. By the first six months of life, the child starts demonstrating the basic emotions which include joy, surprise, sadness, disgust, anger and fear. The development of consciousness by the second half of the 2nd year allows the child to experience embarrassment, empathy and envy. By the end of three years, the child develops the final set of emotions which comprise of pride, guilt and shame. Thus, within the first three years of life, the framework for emotions is already developed and as we grow older, more emotions continue to get added (Lewis et al.,2008). Parents play an important role in helping children understand and regulate their emotions. A sound understanding of emotions helps children be in touch with how they feel and take rational decisions when they face difficult situations.

Trauma and emotional problems

According to Sarid and Huss (2010), "trauma is experienced as a psychophysical experience, even when the traumatic event causes no direct bodily harm." (p.1.). Though we have identified some of the common risk factors of trauma in children such as race, ethnicity, poverty status, gender, prior exposure to trauma etc (Briere & Scott, 2015), it is still difficult to predict the effects of trauma on children because emotions vary from person to person. During a stressful situation, emotions protect the individual by activating the fight or flight mechanism which alters the arousal levels. Every experience of extreme stress like trauma brings a change in the arousal pattern. With repeated exposure to trauma, the individual becomes unable to modulate the arousal and therefore the arousal patterns either stay highly activated at all times or the individual experiences a blunting of emotions. In the case of traumatised children, this failure to modulate arousal leads to behaviours such as irritability, aggressiveness, anxiety etc (Bloom, 1999).

The four characteristics common to most cases of childhood trauma are sensory memories, repetitive behaviours, fears related to trauma and changed perspectives about the world. These characteristics manifest in the various emotional disorders that occur as a result of trauma such as post-traumatic stress disorder, depression, anxiety, panic attacks, emotional numbing etc (Terr, 1991). Attention and conduct problems common in schools tend to have a history of trauma as a causal factor. For example, a hyperaroused child is likely to be diagnosed as hyperactive or inattentive because these children tend to focus more on the teacher's tone of voice, other body cues or purposefully create the chaos that is normal for them rather than focus on the lesson being taught (Perry & Szalavitz, 2007). There may be exceptions but traumatic re-enactment happens unconsciously and is therefore seen when children engage in creative activities such as drawing or play which activate the unconscious.

Art as a therapy

Before the creation of language, it was through the non-verbal means such as art that humans communicated with each other. As humans became sophisticated, the display of emotions was considered to be primitive and thus we slowly lost touch with art and thereby our emotions (Bloom, 2011). There are many forms of art such as visual, theatre, movement etc and all these creative mediums are suitable for dealing with victims of trauma. Though the healing properties of art is a common knowledge, the field of art therapy developed only in the 1970s. During trauma, the non verbal areas of the brain become active and thus choosing words to express the emotions may not be an effective medium for therapy. Art offers a way to externalise the trauma and activates the sensory components required to process the traumatic memories. It is a holistic model of treatment as it is able to target the physical, emotional and cognitive aspects of trauma (Sarid & Huss, 2010).This form of therapy utilizes the creative process inherent in every individual and uses it to promote growth, self-expression, conflict resolution and transformation(Malchiodi, 2007).Moreover, creating art

after a traumatic incident such as natural disaster gives children an opportunity to find a meaning to the trauma and regain control over their lives which promotes healing (Orr, 2007). For traumatised children, art helps to overcome the limitation of vocabulary, develop self-esteem, learn new skills and provides a safe platform for self expression(Malchiodi, 2007). In this research, art was used as a medium to help children deal with their emotions by giving more focus to the process of creation rather than the final product.

Children and disasters

Many children and adolescents have been affected by disasters in the past decade (American Psychological Association, 2008). Disasters can be natural such as floods and earthquakes or man-made such as war and terrorism. The vibrations in the form of energy that lead to tremors or shaking of the earth's crust is defined as an earthquake (Bera, 2016). Earthquakes are a common occurrence but because most of them are mild tremors, individuals are not able to detect it (National Child Traumatic Stress Network, n.d.). The aftershocks tend to persist for months after the original earthquake and cause more damage and injury. Due to the devastating effects of earthquake on human settlements, researchers have tried to study earthquakes to predict its course and reduce the level of physical and psychological damage. However, there are numerous challenges while conducting research after disasters such as ethical concerns, unavailability of tools, lack of pre-disaster data etc. Nevertheless, there has been a rise in disaster research which shows the interest of researchers to identify the risk factors and develop interventions to protect the affected population (Masten & Osofsky, 2010).

Earthquake and mental health in Nepal

Nepal is a landlocked country situated between India and China. The history of disasters in Nepal reveal the variability of disasters across the country and the damage

undergone in this process. Disaster management is a challenge due to factors such as political instability, corruption, untrained manpower etc which leads to loss of lives and property every year (Aryal, 2012).Nepal is ranked 11th in the list of most earthquake prone country in the world. The first recorded earthquake was in 1255 AD (National Planning Commission, 2015) after which major earthquakes have occurred in 1934, 1980, 1988, 2011 and 2015 (Bera, 2016). On 25 April 2015, 7.6 magnitude earthquake struck Barpak in the district of Gorkha, about 76 km northeast of Kathmandu. This was the strongest earthquake in 80 years. After this earthquake, a series of aftershocks followed, the major one being of 6.8 magnitude with epicentre near Mount Everest in May. 31 out of the 75 districts of Nepal experienced damage, out of which 14 were considered to be most affected. A total of 706 billion NPR (7 billion US dollars) was estimated to be the damage caused by the 2015 earthquake (National Planning Commission, 2015).

In addition to the damages to the physical infrastructure, the country faced new challenges with regard to mental health; which is a neglected sector till date. Attempts were made to improve the mental health sector by drafting a mental health policy (1997) that aimed to provide mental health care to everyone and a mental health legislation (2006) that was designed to safeguard the rights of those with mental illness. However, neither of these policies were implemented by the government (Luitel et al., 2015). Furthermore, the absence of a national level study of mental disorders made it difficult to estimate whether the current mental health issues were a result of the earthquake or an exacerbation of the pre-existing mental health problems (Sherchan et al., 2017).

Out of the 8 million people affected by the earthquake, 3.2 million were children. Within this group of children, 1 million were found to be living in the 14 most affected districts (National Planning Commission, 2015). A study conducted a year after the earthquake in five of the most affected districts showed that out of the 680 children

interviewed, 50% children reported overreaction to loud noises while 23% children reported trouble sleeping for fear of another earthquake (Fievet et al., 2016). Considering the impact of earthquake on the children and the weak mental health sector, it is important to conduct systematic research to identify relevant treatment options for these earthquake affected children.

Theory of the study

The research is based on Herman's three phases of trauma treatment and person-centred approach to art therapy.

According to Herman, the goal of trauma therapy can be divided into three stages. They are establishing safety, remembrance and mourning, and reconnection. The first stage involves establishing a relationship of trust with the clients. Art as a medium facilitates the sense of safety through the process of relaxation that helps to reduce the arousal symptoms experienced by the children due to the trauma. In the second stage, the focus is on reconstructing and transforming the trauma narrative to facilitate normalisation of the client's responses and fostering hope for the future. Art allows individuals to externalise the trauma through the drawings and recreate the narrative thereby altering the both the explicit and implicit memory related to the event. The model acknowledges the effect of trauma not only on the self but also on the relationship the individual has with the society. The final step to recovery involves encouraging clients to live in the present, being a part of the community and developing fruitful relationships. Individuals become able to think of a future through their art and by incorporating positive themes in their drawings receive the motivation to return to the community (Green, 2011; Herman, 2015).

Based on the philosophy of Carl Rogers, the person-centered approach to art therapy rests on the belief that through the artistic expression the individual is able to find a solution to the conflicts themselves. The importance is given to the client's personal experiences

shared using art and the role of the therapist is to create an environment where the client can reach his/her full potential. The two main principles of this approach are active and empathetic seeing and acceptance. In an art session, the therapist provides full attention to the creative process of the individual and asks relevant questions to gain a better understanding of the art. The focus is not to interpret the work but to clarify the feelings and thoughts shared by the client. Such questions convey to the client that the therapist is able to see how the client views the world around him. This inclusion of art in the therapeutic process allows the therapist to see the experiences of the client along with the verbal account. Rogers believed that when therapist are able to see the private world of the person as he sees it, the process of change occurs. In person-centered therapy, individuals are allowed to express without any fear of judgement. Applying this principle in art sessions, therapist encourages the client to focus on the process rather than the final product. Every art expression is treated equally and accepted as a path to finding personal meaning. Clients want to express their problems and the freedom provided by the art motivates them to find a way to a healthy life. Thus, it is through encouraging every expression without judgement and providing complete attention to the interactions in the art sessions, creativity becomes a medium of healing for the clients (Malchiodi, 2003).

Rationale of the study

In low and middle income countries(LAMIC), children comprise 35-50% of the population. Yet the research in child and adolescent mental health is very limited (Patel et al., 2008). Nepal is no exception to this where mental health of children is given a secondary status despite children below 14 years constituting 34.9% of the total population (Government of Nepal, 2014). Considering the recent earthquake, it becomes imperative to conduct research to identify how earthquake has impacted the psychological well-being of the

children. The outcome of trauma on individuals is variable so there is no fixed rulebook that can be followed for trauma treatment. The only solution is to continue trauma research and explore the possibilities to develop better therapies. Though researchers have overcome some of the obstacles in trauma research (Masten & Osofsky, 2010), the ethical issues surrounding research with children has forced clinicians to apply the findings of adult trauma studies to treat children. Many of the trauma treatments for children and adolescents have not been researched properly and therefore there is a need to identify culturally relevant treatment options for children with trauma (American Psychological Association, 2008). Children also experience emotional problems after a traumatic incident but PTSD has received the most attention from the researchers so far (Neria et al., 2008).

To meet this objective, the present study aimed to use an art-based intervention to help children deal with the emotional problems due to the earthquake. Art is an universal language and despite its effectiveness, it continues to be considered as an alternative mode of treatment. In addition to this, art is a non-directive method which can help the children talk about their problems in a non-threatening way as well as teach them healthy mechanisms of coping which can be used in the future.

Significance of the study

Being a developing country, most of the limited resources in Nepal are directed primarily to fulfil the basic needs of the citizens. However, the study aimed to highlight the need to focus on physical and mental health simultaneously. It aimed to develop an art-based intervention for the earthquake affected children of Nepal which can be administered on a large scale without the help of therapists. The studies conducted post-earthquake have identified the problems to a certain extent (Acharya et al., 2018; Kane et al., 2018) but no actions have been taken to resolve them as the psychological needs are considered secondary

in Nepal. Hence, the researcher aimed to conduct a study that focuses on the psychological impact of the earthquake taking into account variables that have not yet been explored in this population. In addition, the research aimed to identify how the culture has influenced the interpretation of children about the earthquake which is a crucial element in identifying and promoting the coping strategies of a culture (West-Olatunji & Yoon, 2013). The findings of the study will help to develop appropriate child-centred trauma interventions which can be implemented in the event of future disasters.

Operational definitions

Trauma

Trauma is an autonomic, physiological and neurological response to overwhelming events or experiences that creates a secondary psychological response(Rothchild,2000 as cited in Malchiodi, 2008,pg.4).

Disaster

Disaster refers to one-time or ongoing events of human or natural cause that lead groups of people to experience stressors including the threat of death, bereavement, disrupted social support systems and insecurities of basic human needs (Becker-Blease et al., 2010).

Earthquake

The vibrations in the form of energy that lead to tremors or shaking of the earth's crust is defined as an earthquake (Bera, 2016).

Exposure

Exposure refers to survivors who suffered from life changing situations such as personal injuries, the deaths or injury of family members, relatives or friends or the loss of or damage to personal or family property, as a result of the earthquake (Xu et al., 2016).

Emotion

Emotions are feelings that generally have both physiological andcognitive elements and that influence behaviour (Feldman, 2011).

Art

The creative process inherent in every individual which promotes growth, self-expression,emotional reparation, conflict resolution and transformation(Malchiodi, 2007).

Art therapy

Art therapy is a form of psychotherapy that uses art media as its primary mode of expression and communication. Within this context, art is not used as diagnostic tool but as a medium to address emotional issues which may be confusing and distressing(British Association of Art Therapists, n.d.).

Research questions

- What are the long-term emotional problems of children affected by the earthquake in Nepal ?
- Are there any gender differences in the long-term emotional problems of children affected by the earthquake in Nepal ?
- What is the role of exposure, socio-economic status and type of family on the long-term emotional problems of children affected by the earthquake in Nepal ?
- Will art help to reduce the long-term emotional problems of children affected by the earthquake in Nepal?

- What are the elements of art that contribute to a change in the long-term emotional problems of children affected by the earthquake in Nepal?
- What is the cultural understanding of trauma according to the children affected by the earthquake in Nepal?

Research objectives

- To identify the long-term emotional problems experienced by the children affected by earthquake in Nepal
- To develop an art-based intervention for the children affected by earthquake in Nepal
- To understand the process and change due to art-based intervention in children affected by earthquake in Nepal
- To explore the cultural influence of trauma in children affected by earthquake in Nepal

Hypotheses

Phase 1

H1: Exposure to the earthquake is associated withlong-term total difficultiesof the children affected by earthquake in Nepal

H1a: Exposure to the earthquake is associated with long-term emotional problemsof the children affected by earthquake in Nepal

H1b: Exposure to the earthquake is associated with long-term conduct problems of the children affected by earthquake in Nepal

H1c: Exposure to the earthquake is associated with long-term hyperactivity problems of the children affected by earthquake in Nepal

H1d: Exposure to the earthquake is associated with long-term peer problems of the children affected by earthquake in Nepal

H1e: Exposure to the earthquake is associated with long-term pro-social behaviours of the children affected by earthquake in Nepal

H2: Gender differences exist in the long-term total difficulties of the children affected by earthquake in Nepal

H2a: Gender differences exist in the long-term emotional problemsof the children affected by earthquake in Nepal

H2b: Gender differences exist in the long-term conduct problems of the children affected by earthquake in Nepal

H2c: Gender differences exist in the long-term hyperactivity problems of the children affected by earthquake in Nepal

H2d: Gender differences exist in the long-term peer problems of the children affected by earthquake in Nepal

H2e: Gender differences exist in the long-term pro-social behaviours of the children affected by earthquake in Nepal

H3: Level of long-term total difficulties of the children affected by earthquake in Nepal differ on the basis of severity of exposure

H3a: Level of long-term emotional problemsof the children affected by earthquake in Nepal differ on the basis of severity of exposure

H3b: Level of long-term conduct problems of the children affected by earthquake in Nepal differ on the basis of severity of exposure

H3c: Level of long-term hyperactivity problems of the children affected by earthquake in Nepal differ on the basis of severity of exposure

H3d: Level of long-term peer problems of the children affected by earthquake in Nepal differ on the basis of severity of exposure

H3e: Level of long-term pro-social behaviours of the children affected by earthquake in Nepal differ on the basis of severity of exposure

H4: Type of family has no significant difference on the long-term total difficulties of the children affected by earthquake in Nepal

H4a: Type of family has no significant difference on the long-term emotional problemsof the children affected by earthquake in Nepal

H4b: Type of family has no significant difference on the long-term conduct problems of the children affected by earthquake in Nepal

H4c: Type of family has no significant difference on the long-term hyperactivity problems of the children affected by earthquake in Nepal

H4d: Type of family has no significant difference on the long-term peer problems of the children affected by earthquake in Nepal

H4e: Type of family has no significant difference on the long-term pro-social behaviours of the children affected by earthquake in Nepal

H5: Level of long-term total difficulties of the children affected by earthquake in Nepal differ on the basis of socio-economic status

H5a: Level of long-term emotional problemsof the children affected by earthquake in Nepal differ on the basis of socio-economic status

H5b: Level of long-term conduct problems of the children affected by earthquake in Nepal differ on the basis of socio-economic status

H5c: Level of long-term hyperactivity problems of the children affected by earthquake in Nepal differ on the basis of socio-economic status

H5d: Level of long-term peer problems of the children affected by earthquake in Nepal differ on the basis of socio-economic status

H5e: Level of long-term pro-social behaviours of the children affected by earthquake in Nepal differ on the basis of socio-economic status

Phase 2

H6: Art-based intervention has a significant impact on the long-term total difficulties of the children affected by earthquake in Nepal

H6a: Art-based intervention has a significant impact on the long-term emotional problemsof the children affected by earthquake in Nepal

H6b: Art-based intervention has a significant impact on the long-term conduct problems of the children affected by earthquake in Nepal

H6c: Art-based intervention has a significant impact on the long-term hyperactivity problems of the children affected by earthquake in Nepal

H6d: Art-based intervention has a significant impact on the long-term peer problems of the children affected by earthquake in Nepal

H6e: Art-based intervention has a significant impact on the long-term pro-social behaviours of the children affected by earthquake in Nepal

Chapter 2

Review of Literature

The aim of the research was to examine the role of art in helping children with emotional problems due to the earthquake in Nepal. The studies presented below have been collected from various databases like Google Scholar, JSTOR, ProQuest and Research Gate.The keywords used to identify the relevant studies for the review were trauma, children, earthquake, emotional problems and art therapy. The various studies have been arranged thematically and cover the time period from 2006-2020.

Risk factors for trauma

Xu et al. (2016) explored the mediating role of risk perception on exposure level and mental health and the moderating role of social support on risk perception and mental health in China. Their study identified that females tended to perceive greater direct risk while males felt more indirect risk with regard to the earthquake. While age did not have any influence on the risk perception level, older adults were found to have better psychological health. A higher level of exposure directly impacted the psychological health whereas risk perception had an indirect impact on psychological health. In terms of social support, the effect of risk perception on mental health depended on the type of social support. The authors explain the need to reduce risk perception levels by providing relevant information about the disaster and promoting social support to improve the mental health of the earthquake victims.

Pfefferbaum et al. (2016)in their study reviewed the trauma practices and interventions for children and adolescents. In terms of the intervention, they highlight how the results of the studies are inconclusive and stress on the need to research the various trauma interventions further such that we are able to identify the best intervention. Though cognitive behaviour therapy is considered to be effective, comparisons with other treatment

options is needed to make definite conclusions. Based on this review, they state that the risk factors of trauma are not yet studied effectively and debates about whether individual or group intervention is better can be resolved based on the type of intervention. Though studies have not identified an optimal time for delivery of intervention, they suggest any form of intervention is better than depriving the victims from treatment because of a lack of empirical evidence.

Qi et al. (2016)in their review paper analysed the current status of treatment of PTSD. The paper focused on highlighting two main agendas which were the need to improve research in PTSD and ensuring that the intervention suits the nature of the client. The effectiveness of trauma treatments like psychological debriefing, cognitive behaviour therapy and medications depend on the stage and the type of trauma the clinicians are addressing in the sessions. The authors believe that since the results of any treatments are analysed at a group level, the individual differences tend to be ignored. Hence, the goal of the researchers should be to create specific interventions which meets the needs of the trauma victims rather than testing the effectiveness of a generic method.

In a study, Derivois et al. (2014) assessed the rates of PTSD seven years after the various disasters in Haiti. They identified that traumatic exposure is the variable that best predicts the PTSD symptoms. Other variables that tend to influence PTSD include education, age and social support but exposure largely predicts the occurrence of PTSD in the long term. There was no significant difference in gender with regard to PTSD symptoms. Though the sampling frame could have been restricted to children alone, the study identified a number of factors that can lead to PTSD in the population.

As mentioned in the previous chapter, the research on trauma has not been able to find empirically tested interventions for children. This failure may be due to the unpredictable

nature of trauma that makes it difficult to establish a universal pattern for treatment. Schneider et al. (2013) reviewed the various treatments options that are available for children and adolescents. Their study highlighted the effectiveness of trauma narrative in dealing with the symptoms and how involving parents can be both positive and negative in the treatment process. Talking about trauma brings forth many emotions which are mainly negative and therefore the authors stress on the need to provide motivation to the participants to control for the high attrition rates observed in the trauma studies. While new forms of therapy such as Combined Parent-Child CBT and Pre-School PTSD Treatment are being developed, the essential problems in research with children such as need for research on early intervention trauma protocol and use of medications with traumatised children and adolescents still remains unresolved.

A meta-analysis conducted by Furr et al. (2010) examined post-traumatic stress in children and adolescents under the age of 18 years. Their research found that the variables which influenced post-traumatic stress symptoms were gender and aspects of disaster and disaster exposure such as disaster related death toll, child proximity to the disaster, personal loss etc. Most of the studies were conducted within the first year after the disaster and child reports were identified to be the most reliable as compared to parental reports. However, it is to be noted that the conclusions were based only on peer reviewed studies from the developed countries and the risk factors need further exploration due to the wide variety of findings from these studies.

Spell et al. (2008) explored the influence of maternal health on the children exposed to Hurricane Katrina. The results of the study show that income, exposure(personal loss, perceived threat) and maternal distress influence the trauma symptoms in children. Though there was no pre-disaster data, this study revealed that parents also need to be assessed after the disaster. Neria et al. (2008) conducted a systematic review of the PTSD studies between

1980-2007.The authors found that while there is a decline in PTSD in human-made and technological disasters over time, in the case of natural disasters, the results are inconsistent. Exposure was the variable that was consistently shown to be a risk factor as the PTSD rates were higher among the directly exposed as compared to the rescue workers, first responders and the general population. The problems in disaster research as per the review include lack of a universal definition about disasters, lack of consensus about the tools, differences in the ways the variables are tested in studies which restricts comparison etc. Though the study is limited to PTSD alone, the authors stress that the impact of disasters may continue to persist for high risk groups despite the reduction in the rates.

In a study, Kar et al. (2007)examined the long term effects of cyclone among children in Orissa. The study examined the role of gender, age, socio-economic status and educational level on the symptoms exhibited by the children. The researchers identified that females, children belonging to high exposure areas, middle socioeconomic status and lower educational level experienced more symptoms than the other groups. An interesting finding of this study was that the 11-13 year old age group were found to be more vulnerable than the other age groups which is contradictory to the belief that younger children are the vulnerable group. The study found that the fear of the trauma persisted even after a year and due to the lack of understanding about trauma the problems experienced by children usually goes unnoticed till they reach epidemic proportions.

Children rely on the parents to regulate and learn the ways to deal with the aftermath of the disaster. Endo et al. (2007) investigated the role of mental health of parents on the behavioural changes in children after an earthquake in Japan. The assessment which was done at different time intervals after the earthquake showed children experienced mostly PTSD related symptoms such as reexperiencing, numbing and hyperarousal. The children whose parents had poor mental health were more likely to display these behavioural changes

even at 5 months after the earthquake. Parents are an important part of disaster preparedness and those children whose parents had mental health problems prior to the disaster need extra support in disaster management programs.

Need for long-term studies

The lack of longitudinal studies of trauma prevents researchers from charting the course of trauma as well as advocating for continuous monitoring of the affected population. This limitation was overcome by Goenjian et al.(2020) by assessing participants from two affected areas 25 years after the earthquake in Armenia. The participants who were adolescents at the time of the initial assessment (1.5 years after the trauma) were traced and their PTSD and depression symptoms were checked by the researchers. The results showed that the individuals who resided in the area with fewer post-disaster adversities had lesser PTSD and depression at 25 years. Furthermore, adolescents who had received school-based trauma interventions at 1.5 years after the event experienced fewer psychological symptoms in the future which prove the beneficial and lasting impacts of treatment. An interesting finding of this study was the influence of post disaster chronic illness on PTSD and depression symptoms which calls for the health professionals to view physical and mental health together while conducting recovery programs. The effects of trauma may subside with time but with proper access to treatment and better post-disaster environments, the affected groups can heal faster than the usual time period.

Henderson and Elsass (2015) investigated the long-term effects of tsunami in adults in relation to traumatisation and general distress. They found that women experienced higher levels of trauma than men but they did not differ significantly in terms of distress. While variables such as gender, length of education, income, exposure influenced the PTSD rates, risk factors for distress included age ,language, education level and social support. Similar to

the other long-term studies done by Irwanto et al. (2015) and Piyasil et al.(2011), PTSD was present even after five years of tsunami.

A study by Irwanto et al. (2015) found that PTSD was present among the children even after five years from the tsunami. While there were no differences with regard to age and gender, children who experienced the tsunami directly had higher rates of PTSD. The most common symptoms reported by the children were sleep disorders, nightmares and avoidance reactions while the most frequent experiences associated with PTSD were delay in evacuation and feeling unable to escape.

Piyasil et al. (2011) conducted a follow-up of their 2007 study. In this study, they identified that the rates of PTSD gradually declined over the years. The most common symptoms seen in the sample were distress with cue, intrusive thought, functioning impairment, startled response, terrified and hyper-vigilance. Though the PTSD rates reduced, the authors state that the post disaster psychiatric morbidity in children continued for years and a small section of the population had PTSD even after 5 years. The effects of the tsunami continued to manifest in the form of sadness, panic attacks, aggressive conduct behaviour, school drop-out etc. Thus, the research highlights the relevance of trauma studies conducted years after the disaster as it identifies the individuals who have not yet healed from the trauma.

The initial rates of PTSD following a disaster tend to be high and as individuals learn to adapt to trauma, the rates gradually decrease. However, one cannot ignore that a section of the population will continue to experience its effects for a long time. This was observed in the study by Piyasil et al. (2007) in which even though the continuous two years monitoring reduced the PTSD rates overtime, some children continued to suffer the effects of trauma. The study also found that the children between the age group of 9-10 years suffered the

highest and significant drop in PTSD rates was seen after one to one and a half years post-tsunami. This study shows the need to conduct follow-up studies post-disaster and not restrict the support only during the emergency period following the disaster.

Impact of earthquake in different countries

After a natural disaster, not all individuals seek help for their symptoms which prevents them from receiving the needed support during their healing. Piccardi et al.(2017) compared two groups of young adults after an earthquake in Italy. Though both the groups were living in the same area, only one was exposed to the natural disaster. The researchers found that the exposed group suffered from the impacts of trauma mainly in terms of dissociation, reexperiencing and avoidance seven years after the trauma. Though the earthquake was a single event, the participants in the study continued to experience the effects due to the frequent aftershocks. There are many reasons behind refusal to seek treatment post -disaster but researchers believe that teaching coping strategies and reducing social isolation after a disaster prevents long-term problems in the population.

Kumar et al. (2016) compared two traumatic events in Gujarat (India) which were the earthquake in 2001 and the riots in 2002 using the Strengths and Difficulties Questionnaire(SDQ). In the first condition between the trauma and non-trauma group, they found that age, religion, exposure to trauma influenced the emotional problems experienced by the children. When the victims of the two trauma incidents were compared in the second condition(earthquake vs riot) , their religion and socio-economic status had a role to play in the emotional problems experienced by them. Furthermore, the riot victims were found to experience higher emotional problems than the earthquake victims. Gender did not have any influence in either of the two conditions. Thus, the results show that the trauma-exposed children experience problems in the long-term despite the type of trauma.

Even if the trauma is same, its impact differs from individual to individual. One of the probable factors behind this difference is resilience (Ying et al., 2014). The findings of this research done in China showed how the severity of trauma is positively associated with PTSD and depressive symptoms while resilience helps to counteract the effects. Furthermore, similar to the findings by Erkan(2009), females were more vulnerable to PTSD and depression as compared to males. The study shows the need to incorporate resilience as one of the key pillars in trauma treatment and develop these skills from an early age to provide a buffer in case of a trauma exposure.

The absence of a proper child and adolescent mental health policy in low income countries shows the need to pay attention to the mental health of children in such countries especially post-disasters. Liu et al. (2011) addressed this gap in research on child mental health in developing countries in their study. They identified that the rates and severity of the symptoms for anxiety, depression and PTSD was similar in the assessments done at 6 months and a year after the earthquake in China. The higher rates of symptoms found in the study could be due to the use of only self-reports for the purpose of assessment. Nevertheless, the findings revealed that exposure to death and initial extreme fear were important causal factors for the mental health problems among children.

Earthquakes are one of the natural disasters that impact both the individual and the country. Erkan (2009) examined the effect of earthquake in Turkey on the emotional and behavioural problems of preschool children with respect to gender and mother's level of education. While gender was identified to be a risk factor with girls being more vulnerable than boys, the education level of the mothers determined the identification of the symptoms as mothers with low education reported more emotional and behavioural problems in children across all dimensions. Similar to the review study by Schneider et al. (2013), the researchers also considered parental bias to be an extraneous variable. The effective way of controlling

this was a thorough examination of the family background and utilisation of multiple sources of information to get an accurate understanding of post disaster reactions which in turn help to create effective interventions.

American Psychiatric Association has pointed out that most of our understanding of childhood trauma is based on the studies done in adults(American Psychological Association, 2008). A need to explore more about the impacts of trauma on children was addressed by Bal(2008).The study examined the influence of variables such as severity of exposure, gender, and age of survivors in predicting the occurrence of childhood PTSD symptoms after an earthquake in Turkey. Even after three years, children showed PTSD symptoms and gender and exposure played a role in determination of the symptoms. However, similar to the study by Erkan(2009), the researchers pointed out the need to gather information from multiple sources before drawing a conclusion about the mental state of the children.

Mental health in Nepal

Children and adolescents constitute 40% of the total population in Nepal. Even if this group occupies a large proportion, the attention given to the problems faced by the young cohort is less. This issue was raised by Chaulagain et al. (2019) in a review paper that focused on studies conducted on children and adolescents in Nepal. The review found that the studies focused primarily on post traumatic stress symptoms followed by emotional and behavioural problems and the high rates of mental disorders identified in the studies point to the need for proper policies to address this problem in the country. Though the conclusions were based only on ten studies, the authors found that problems such as use of convenient sampling, lack of validated tools and poor methodology prevented comparisons across studies as well as created difficulties to estimate the prevalence of mental health problems in children and adolescents in Nepal.

The earthquake in the year 2015 added to the already existing mental health problems due to stigma and lack of appropriate funding. A research conducted by Kane et al. (2018) four months after the second earthquake revealed that the population had higher rates of psychological distress than the actual mental illness. A survey from the three earthquake affected districts identified higher rates of depression, anxiety and alcohol use among the participants which correlated to the studies done post-conflict in Nepal. Interestingly, the PTSD rates were found to be lower than other earthquake studies and studies done post-conflict and the reason could be the stigma attached to trauma which prevented participants from reporting their problems. Women, those belonging to a lower caste and high exposure areas were identified to be vulnerable groups while higher rates of alcohol use was found among men. Though this study shed some light on the situation of mental health post-earthquake by assessing certain symptoms after trauma, the lack of pre-earthquake rates make it difficult to conclude whether these problems were pre-existing or not.

A study on children a year after the earthquake was conducted by Acharya et al. (2018). The participants were from Kathmandu who were assessed for exposure and PTSD symptoms. Exposure, age, social support, religion and place of residence were identified as risk factors for PTSD. The study did not find any gender differences but unlike the study by Kane et al.(2018), higher rates of PTSD were found especially among school age children. Interventions are important after disasters but they need to be implemented in the most affected areas for maximum efficacy. Based on the research findings, interventions are required for school-age children and those living in suburban areas as they are the vulnerable groups who need assistance after the earthquake.

Mental health professionals are able to give a realistic description of the state of mental health in the country. Hall et al. (2016) explored the mental health needs of Nepal by interviewing the mental health professionals. Their study revealed stigma to be the main

barrier in improving the mental health of the country. There is a lack of support and resources which prevents the professionals from providing the latest care to those in need. Since Nepal is a country which has not given much attention to mental health, it is not surprising that there is a lack of culturally relevant strategies to deal with the mental health issues. The identification of ways to overcome the stigma and providing professionals an opportunity to access culturally relevant training seems to be the best alternative available to the country.

A decade long armed conflict preceded the earthquake in Nepal. Though the war ended, the country faced mental health crisis with soldiers struggling to return to normal life. Axinn et al.(2013)explored the impacts of the turmoil period on men and women by examining the levels of PTSD, depression and intermittent explosive disorder(IED). Both men and women participated in the revolution. While men reported higher levels of trauma, the impact on women was more as reflected by the high levels of PTSD. However, men in the study had higher levels of IED which show that both men and women were affected by the conflict but their responses differ. The dose response effect was present and researchers proposed that the difference in the trauma reactions could be due to prior violence, social support and socialisation process in Nepal. Though gender differences have been identified in other studies, investigating the potential mechanisms behind the variations will further improve the understanding of trauma in the future.

Considering the stigma attached to mental illness, proper attention to mental health has been given only after the decade long civil war and the Bhutanese refugees relocation. Kohrt and Hruschka (2010) through their study explored the local idioms of distress and local ethnopsychology models that promote communication about mental health without creating stigma. In Nepal, the idioms of distress were related to feelings of fear, sadness, suffering and worrying and Karma was believed to be the causal factor for trauma which further stigmatised the victims. Though the effect of stigma has been spoken of in the various studies

done in Nepal, this study identified that the society stigmatises brain-mind problems more than heart-mind problems as they are believed to be contagious and permanent. Unlike the common perceptions in the west about the cathartic effect of talking, the participants sought to forget about the trauma and it was considered to be a sign of healing. Therefore, the study stressed on the need to gain an understanding of the local construct of trauma as it helps to design interventions that can prevent further stigmatisation of the individuals in the society.

Factors to consider in art sessions

Holmqvist et al. (2017) explored the theme of change seen in art therapy from the point of view of the therapists. The art therapists in the study believed that there are five main ways in which change is observed in the clients. These include development of trust as reflected by detailed drawings, use of different materials, verbal expression of change, development of new insight and congruence between the image and their explanation. Usually there is no agreement among the art therapists about how change occurs in sessions but when clients demonstrate optimism about their future, the goal of the therapy is believed to be accomplished.

A review study by Eaton et al. (2007) found that one of the challenges faced by art therapists was difficulty in creating a structured art approach. Westrhenen et al. (2017) in her study explored the usefulness of an art therapy protocol that overcomes this limitation. The creative arts in psychotherapy (CAP) programme was created to address the problems of interpersonal violence and abuse in South Africa. This protocol was based on the Herman's model of trauma treatment and followed a structured approach to dealing with the effects of trauma faced by the children. Though the protocol is yet to be implemented in different settings, the preliminary findings show the possibility of conducting creative art sessions in a manner that promotes freedom in the clients as well as allows researchers to quantitatively

measure the impact of the intervention. Furthermore, the power of groups was stressed by the authors as it facilitates healing with peers and helps to reach many children who may have been denied treatments due to limited resources.

Every therapist has their own approach when dealing with clients. The different approaches have their unique strengths and it is important to know the models that are being practiced to choose the best for the problems of the individuals. Van Lith (2016) reviewed the art therapy approaches used for mental health problems all over the world. It was found that art therapy was used for four main mental disorders which were depression, borderline personality disorder, schizophrenia, and PTSD. Psychoanalytic theories were mainly used for treating depression, borderline personality disorder and schizophrenia while for PTSD, the therapist tailored the approach to suit the context and the culture of the individual. Regardless of the approach adopted, the review found that there were certain conditions needed for better therapeutic outcomes in art therapy which were common goals, client's participation and the nature of the therapist. The study highlighted that there is a need for therapists to critically share their insights about the approaches they use to promote feasible choices and to gather client's perspectives to identify the reasons behind the success of a particular model.

Art therapy as a field is not considered scientific as the processes that underlie the method are difficult to test under rigid conditions. However, if art therapists take efforts to specify the mechanisms that are active in their research studies by using interviews and appropriate scales, it would help to develop a common theory for art therapy. Czamanski-Cohen and Weihs (2016) proposed a model to understand the mechanisms that are in play during an art activity. This model was created to overcome the limitations of previous theories of art therapy and is based on the principle that art activates both the mind and body which ultimately leads to a change in self. According to the authors, there are four core processes that guide an individual to recovery when engaged in art. These processes are

triangular relationship, self-engagement, embodied self expression and meta-cognitive processes. Though the model is in its initial phase, these core processes give an idea how art influences the emotional and cognitive aspects in an individual to achieve the goals of therapy.

The outcomes of art therapy is based on a number of factors. While the process cannot be planned beforehand, the goals and methods can be clearly defined to help future researchers develop new studies in this field. Westrhenen and Fritz (2014) reviewed the studies on creative arts therapies from 2000-2012. The researchers found that majority of the studies were qualitative followed by quantitative and mixed method designs. There is a lack of studies on the use of creative arts therapies on children especially in the context of trauma which could be due to the fact that many art therapists are not in the field of academia. Unlike the other psychotherapy approaches, art is an abstract concept and hence it becomes difficult to quantify the experiences of the clients. Similar to the review studies by Orr(2007) and Eaton et al.(2007), the researchers suggest that the field of creative arts therapies can improve by adopting robust methodology which is possible by collaborating with researchers and by including the voices of the participants to support the changes observed in the creative art sessions.

The traditional routes to treating trauma include medications and cognitive behavioural therapy. Eaton et al. (2007) shed light on the usefulness of art therapy for children with trauma which is an option not considered by trauma therapists. The lack of attention given to this mode of treatment has prevented researchers and therapists from utilising the beneficial aspects of art for trauma. The review identified that art therapy has been used in a variety of contexts and types of trauma in children. Majority of these studies followed a case study method and included a small sample of participants. This could be due to the nature of art which prevents researchers from measuring the outcomes in a quantitative

format and conducting the art sessions in a rigid fashion required for an empirical study. Nevertheless, the authors believe that if researchers are able to clearly explain the nature of the intervention and the participants in their studies, it will allow for easy comparisons across studies and help to establish art therapy as an effective tool for trauma treatment.

Orr (2007) reviewed the studies on the use of art therapy with children after disasters. The findings revealed that it is a challenge for the art therapists to conduct a proper research after disasters in short and long-term due to lack of resources and proper settings. After a disaster, art therapy was mostly provided by volunteers and the traits that helped them during such difficult working scenarios were being empathetic, accepting and flexible. This study found that art created a safe place for emotional expression, promoted catharsis and taught children to live in the present. Even if the art therapists were restricted in the choice of materials during a crisis, the main focus was to provide control and motivate the children to enjoy the process of art making which ultimately helped to boost resilience.

Impact of art on individuals

Early interventions are essential to improve the mental health of children and to reduce future burden on the country. The effectiveness of a school-based art therapy was assessed by McDonald et al. (2019) in a primary school. The study relied on the observations of the teachers and the child reports to judge the efficacy of the art intervention for emotional and behavioural problems of children. Based on the teachers assessment, there was a reduction in the hyperactivity and emotional problems and an improvement in the help-seeking behaviour of the children. Consistent to the teacher ratings, the children reported that they felt calmer, supported, confident and able to express their feelings better after the art sessions. The mismatch in the two sources occurred in terms of reasons for referral as while the teachers usually referred children for behavioural reasons, the children considered their

feelings as the need to seek treatment. Further research with larger sample sizes and inclusion of parents would contribute to the development of the intervention.

Pictures are powerful agents of change. Besides drawing, photography is another medium that allow clients to express their inner thoughts in a visual manner. Quaglietti (2018) used photography with war veterans to promote recovery by building social support and sense of purpose. Along with the standard mental health care, the veterans participated in a photography workshop and six weeks later shared the changes they had experienced while capturing their recovery process. Participants reported the intervention to be beneficial in their recovery as they were able to understand their emotions, communicate their feelings and view photographs as a symbol of their growth. The veterans expressed stories of pain, recovery, loneliness and transformation with the help of the photographs. For individuals who are struggling with long term mental illness, creative arts can provide a relief from the symptoms and allow them to focus on their strengths rather than the diagnosis.

Art facilitates the exploration of painful memories as a result of trauma. Ugurlu et al. (2016) investigated the presence of PTSD, depression and anxiety(trait and state) among the refugee children in Syria. Their study utilised art therapy to help the children deal with the issues of migration that usually occurs among refugees. Through the intervention, children learnt to understand their emotions which led to the reduction in symptoms of PTSD, depression and trait anxiety symptoms. The study emphasised on the importance of group art therapy similar to the study by Chilcote (2007) as working in a group allowed children to share their emotions among peers and provided an understanding that they are not alone in experiencing symptoms post-trauma. While the study had a small sample and lacked a control group, the research demonstrated how art can be a self-soothing exercise and pointed out the need for culturally sensitive assessments and therapy to accurately assess the effects of trauma.

Rankanen(2016) tried to identify how art therapy facilitates change in the clients both by taking a retrospective account of their experience in therapy as well as conducting an assessment five years later. The participants reported that their overall health improved due to art because they learnt to identify their coping resources, ways to express themselves effectively and develop a healthy self-identity. Being a part of the group promoted belongingness and taught ways to approach a problem from multiple perspectives. While some participants felt vulnerable and questioned the effectiveness of the group, the challenges helped them to understand themselves better. The role of the therapist as a facilitator was considered crucial in guiding through the difficult moments in the sessions. The benefits of art therapy motivated the participants to further engage in creative activities and to apply the skills learnt in their everyday life.

Stress has a negative impact on the functioning of the body. Kaimal et al.(2016) tried to identify the role of art in dealing with stressful events from a biological perspective. By measuring the levels of cortisol in the saliva of the participants before and after the art intervention, the researchers concluded that the effectiveness of art is limited to only a section of the participants. Though the study failed to identify any influence of variables such as prior art experience, materials ,ethnicity, gender on the reduction of the cortisol levels, the participants felt motivated to use art as it gave an experience of change and an opportunity to learn about oneself which in turn reduced the stress levels. Though it was a pilot study, it underscored the need to conduct multiple art sessions to sustain a long term change in the individuals.

School-based interventions are effective as researchers are able to reach out to children easily than in home environments. Cortina and Fazel (2015) conducted an art-based intervention for children with emotional and behavioural difficulties. The academic challenges faced by children could be a result of inability to concentrate, peer issues, anxiety

etc which are ignored when evaluating a child. This weekly intervention that lasted for 10 weeks targeted these issues and teachers reported a positive change in the behaviour of the children. The participants also experienced an improvement in their mood and feelings. Such targeted interventions are able to address the main causes of the problem thereby reducing the time taken to overcome the symptoms and providing noticeable relief to the individuals in comparison to universal interventions that follow a general treatment method.

The benefits of using art to deal with trauma was explained by Hass-Cohen et al. (2014). An intervention called "Check Art Therapy Protocol" was administered on a woman who survived the September 11 attacks. Through the art sessions, the participant was able to manage the anxiety levels and gain an insight about the ways to deal with the intrusive memories. The outcomes of this intervention resonates with the findings of the study by Kaimal et al. (2016) where change was the main motivating factor for individuals to use art as a medium to process the painful events. Further replication of such studies helps to add validity to art therapy as a main form of treatment for trauma survivors.

After a traumatic event, the main goal of the individual is survival. The body adopts the different coping mechanisms to stay alive at the present moment. Dissociation is one such strategy to deal with the intense pain and confusion in the aftermath of the trauma. While the positive side of dissociation allows individuals in normal situations to multitask, the over-use prevents them from engaging with the environment. Arts are an effective way to help dissociated individuals as it grounds them in reality through sensory input from the materials. It is believed that trauma results in a spilt-brain like phenomena where the left hemisphere becomes inactive and the right hemisphere takes control over the situation. After the trauma has passed, the disconnection continues and hence the individual is unable to build a coherent narrative of the experience. Art can act as a bridge to help the right hemisphere express and reconnect with the left hemisphere. When this communication is re-established, the

individuals stop dissociating to deal with the pain as they are able to share and describe their feelings to others (Bloom, 2010).

The study by Coholic et al. (2009) used art therapy with foster kids to promote self-awareness and self-esteem. Their intervention taught children ways to control their emotions, apply coping skills and feel more optimistic about themselves. The intervention also incorporated the cultural practices of the children and encouraged discussions about them. The participants developed a positive outlook about themselves and acquired skills that they believed can become a part of their everyday life. The changes reported by the children were also observed by the child care workers and foster parents which shows art brings a change in the attitudes towards self and others.

The effects of trauma are not only limited to the physical injuries but also include the sensory memories which serve as reminders of the trauma. Talwar (2007) proposed an art therapy model which allows the clients to process the intrusive somatic memories due to the trauma. Talwar stressed that creativity involves multiple brain regions and demonstrated how the use of both the dominant and non-dominant hand for emotional expression helped the client to overcome the feelings of being trapped in her life. The findings revealed that affinity to art is not limited to a particular hemisphere and for trauma victims art offers a way to bring a coherence to the bodily memories. Though the protocol has been used only with adults, it highlights the need to focus on the speechless traumatic memories for a complete recovery.

Art and disasters

Izadkhah and Gibbs (2015) explored the use of drawings as an assessment tool to analyse the effectiveness of disaster preparedness training about earthquakes in Iran. Their work revealed that the children applied the information in their drawings by incorporating correct themes related to shelter, protection of themselves and others. The drawings of girls reflected more examples of fear and red or black was mostly used to depict the earthquake.

Though this was a pilot study, using drawings to prepare children about disaster is a useful preventive mechanism to reduce the vulnerability of the children.

Stories are an ancient way to share emotions in the group. Oncu and Wise (2010) in their study explored the use of projective technique (story) to identify the effect of earthquake two years after the event on children. They found that the stories of the traumatised children were more negative and contained references to the earthquake. However, when children believed that they had control over the events by influencing the ending of the story, they usually opted for positive themes in their narration. Though gender differences were not observed in the stories, the results indicate a need to explore the delayed effects of earthquake on children.

A comparison between traumatised and non traumatised children's human figure drawings was done by Oncu et al.(2009) in Turkey. The results showed that there was a minimum, but not statistically significant difference between the two groups of children. However, the drawings revealed that traumatised children were more likely to draw tiny figures and included teeth in the angry figure drawings. In terms of the colour choices, they chose a single colour to complete their drawings unlike the non-traumatised children who drew colourful drawings. They were also more likely to explain their emotions in terms of the disaster. However, the use of human figure drawings alone to assess a child may give a narrow view of their experiences.

Art therapy can be conducted either individually or in a group setting. Chilcote (2007) demonstrated the effectiveness of group art therapy in their study. A month longart therapy program was conducted which allowed the children to express their feelings of fear, hope and safety after the tsunami. Art is both a non-directive and a non-intrusive mode of therapy which gives control and freedom to the clients to share their experience at a pace which they are comfortable with. In this study, this benefit of using art was demonstrated as not all the

children represented trauma in their artworks and some of them dealt with trauma through the safe boundaries of art. The role of religion as a protective factor along with the themes of rescue, love, protection and safety was identified in the drawings of the children. Furthermore, the group sessions allowed the children to experience catharsis through communal healing .Bytaking consent from the children and explaining the nature of the study prior to the intervention helped to establish rapport which ultimately led to better sharing of emotions through art.

The impact of tsunami on children in Sri Lanka was studied by Dewaraja et al. (2006) by using a quantitative and a projective test. The children reported their anxiety scores as well as drew a house, a tree and a person as a part of the study. The findings revealed that there were no differences in anxiety between the gender or whether the children were exposed to the tsunami or not. In contrast, the analysis of the drawings revealed that tsunami affected males were more anxious and passive in comparison to the males who were unaffected by the tsunami. Based on the drawing styles adopted, females in this study were found to be more resilient and confident about themselves. This study is a clear example of how researchers need to use multiple methods for analysis and how projective techniques are able to uncover traits that are overlooked by the common psychological assessments in the field.

The above mentioned results of the various studies highlights the research gaps in disaster research. There is a need to assess the long termproblems of children after disasters and include stakeholders in the process of rebuilding their lives. The effectiveness of art in developing countries is not yet explored even though art is a culturally relevant intervention. Furthermore, the flexibility in using art in group suits the collectivist culture in the developing countries which shows the need for further research in art-based interventions. Many art-based studies fail to incorporate the voices of the participants which prevents the researchers from identifying the factors responsible for the success of the art-based

intervention. By addressing this gap in research, future researchers can apply these factors to develop effective art-based interventions. Thus, the various studies suggest providing psychological and emotional support after natural disasters which is even more necessary in developing countries.

Chapter 3

Method

The hallmark of a good research study is a sound methodology which outlines a clear framework for future replication of the results. This chapter provides a detailed description of the methods adopted to achieve the objectives set forth for the research study.

Research design

Explanatory sequential designwhich is a type of mixed research design was chosen for the study. This is a two phase design conducted at different points in time. Initially the researcher collects and analyses the quantitative data and identifies areas that need further clarification. The qualitative study is then designed to gather explanations on these specific topics. In the final stage, the results from both the phases are combined to arrive at a common conclusion. The participants in both the phases are same but the size of the sample is smaller for the qualitative phase(Creswell & Clark, 2018).

In this research study, the quantitative phase involved identifying and testing the efficacy of an art-based intervention for emotional problems among children affected by earthquake in Nepal. This was followed by a semi-structured interview to gather information about the suitability and impact of the art-based intervention on the participants. The findings from both the phases was then combined to get the final interpretation of the study.

Participants

The researcher conducted two pre-field surveys before the pilot and main study. In the first pre-field survey, children studying in grades from 2 to 5 in four schools of Kathmandu Metropolitan City were selected. The class teachers of the respective grades were also interviewed to understand the situation of the children when the schools reopened after the

earthquake. For the second pre-field survey, elevenstudents from 4th and 5th standard studying in a school in Bangalore were selected to observe their responses to art classes. The pilot and the main study included children(4th and 5th standard) studying in schools belonging to highly affected wards in the Kathmandu Metropolitan City. A total of 58 students participated in the pilot study whereas the main study included a total of 454 students.

Sampling technique

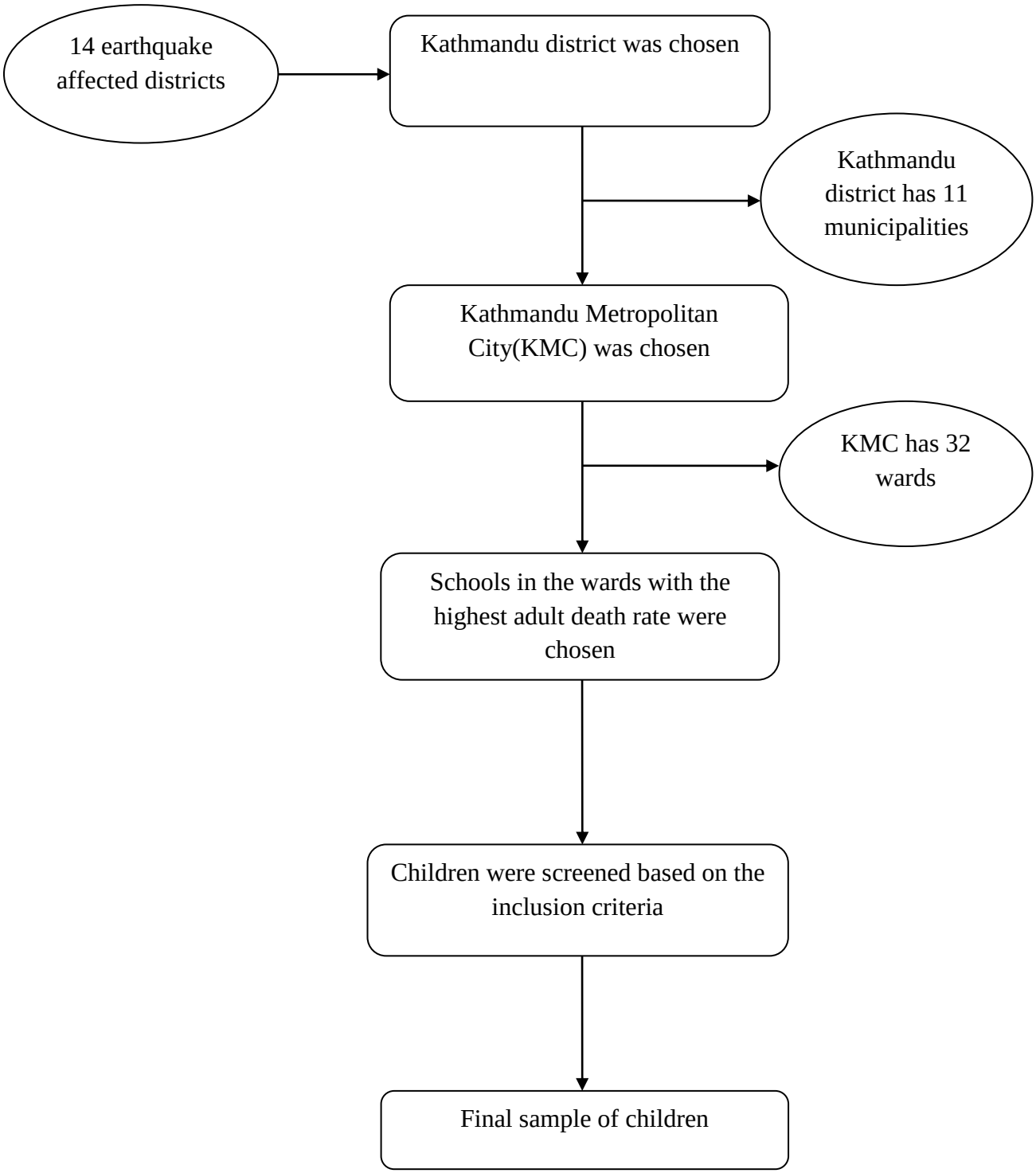
Purposive sampling was used to select the participants for the study. This is a non-probability sampling method where the sample is selected based on certain characteristics of the population and objectives of the study (Maxwell, 2013). Among the 32 wards of Kathmandu Metropolitan City, schools in the wards with the highest adult death (30-50 years) due to the earthquake were chosen to recruit participants for the study.

Sampling criteria

The sample in the study consisted of children who were studying in Grade 1 and 2 (6-7 years) in 2015, present in Kathmandu at the time of the earthquake, studying in schools belonging to the wards with highest adult death(30-45 years) in Kathmandu Metropolitan City, and no prior history of mental illness and trauma. Children who had undergone any form of professional counselling after the earthquake and had ongoing stressors in their life were excluded from the study. The following figure provides a detailed description of the process of sample selection for the main study.

Figure 1

Steps of sample selection for the study


14 earthquake affected districts
Kathmandu district was chosen
Kathmandu district has 11 municipalities
Kathmandu Metropolitan City(KMC) was chosen
KMC has 32 wards
Schools in the wards with the highest adult death rate were chosen
Children were screened based on the inclusion criteria
Final sample of children

Tools

For Phase 1 of the pilot and the main study, data was collected about the socio-demographic details of the child, emotional and behavioural difficulties and their level of exposure to the earthquake. Apart from the level of exposure questionnaire, which was completed by the children in the presence of the researcher, the rest of the forms were filled by the parents/caregiver. All the tools were in the Nepali language to help both children and parents understand the questions easily. Along with the basic socio-demographic details such as gender, ethnicity, income etc., the socio-demographic form also asked the parents regarding their observations about the changes they had witnessed in their child after the earthquake, any incidents of death, injury or loss in the family or friends, presence of any recent stressors and whether the child had undergone any form of counselling after the earthquake. This allowed the researcher to ensure that the problems identified by the parents/caregiver were a result of the exposure to the earthquake. An art-based intervention was developed in Phase 2 to address the trauma memories of the children affected by the earthquake. For the final phase of the study, an interview guide was created for conducting semi-structured interviews with the selected children who had participated in the intervention.

Level of Exposure Scale

Level of exposure is a self-administered questionnaire that consists of six questions about the experiences of the earthquake. The items are based on a 4-point Likert scale (1=none and 4=a great deal). The total score is computed by adding the scores of the six items. The minimum score is 0, and the maximum score is 24(Erdur, 2002). Front and back translation of the tool into a Nepali version was done by official translators. The Cronbach's alphaof this scale in the original study was 0.71. In the pilot study, it was found to be 0.51 and in the main study, it was found to be 0.6 (Appendix D).

Strengths and Difficulties Questionnaire(SDQ)

Strengths and difficulties questionnaire (SDQ) is a 25 item scale which contains five subscales (emotional problems, conduct problems, hyperactivity-inattention, peer problems and pro-social behaviour). All except the last are added to generate a total difficulties score. It is a measure which can be utilized for screening as well as a research tool. The tool has three versions, and for the purpose of the study, the SDQ (parent version) for 4 to 17 years was selected. The Nepali translation of the tool was taken from the official website. The Cronbach's alphaof the parent version in the original study was 0.82 (Goodman, 2001).In the pilot study, it was found to be 0.72 and in the main study was found to be 0.8(Appendix E).

Art-based intervention

The major components of intervention with children who have experienced trauma include: reexposure to traumatic memories through drawing, developing a trauma narrative and cognitive reframing(Steele,2003inMalchiodi,2003). An art-based intervention was conducted in groups to facilitate the exploration of trauma memories. For the pilot study, the intervention was conducted in two groups comprising of three and four members each. In the main study, there were six groups consisting of members ranging from four to six children.There is no agreement about the optimum group size in arts-based work (Coholic et al., 2009).

Each child was given a pencil and a blank piece of paper. It wasupto the child to decide whether they wish to draw in landscape or portrait format. They were given the freedom to choose the art materials and were instructed to draw what they feel in response to the prompt questions. The materials used for intervention included A-4 size papers, drawing papers, graphite pencils with good quality erasers, coloured pencils, markers, crayons, and watercolour paintingsets(Appendix F).

Sessions. Each theme was explored in one session except for the session on emotions. Based on the response of the children in the pilot study, this session was conducted over two meetings to help children comprehend the lesson. Children werealso given time to share their thoughts about the artwork. This is important as it helps the child externalise their thoughts through both verbal and non-verbal means. Further, it also helps the therapist understand the child better(Tanaka et al., 2003, as cited in Malchiodi, 2003). Each session started with a primer activity to relax the group and make them attentive for the session(Coholic et al., 2009). A relaxation activity was done at the end to ensure children were not distressed before they leave. Each session was thus divided into four parts which were primer activity, theme focused activity,sharing and relaxation activity.The development of the art-based intervention was guided by the principles of trauma treatment(Herman, 2015) and included sessions on the following themes (Hass-Cohen et al., 2014;Buchalter, 2009; Oncu et al., 2009; Coholic et al., 2009; Chilcote, 2007; Liebmann, 2003, as cited in Malchiodi, 2003; Malchiodi, 2005, as cited in Gil & Drewes,2006; Malchiodi,2003; Malchiodi,2001).

Ice-breaker session. The goal of this session was to make the participants comfortable and develop feelings of trust in the group. This session helped to achieve the feelings of safety as outlined by Herman (2015).The session started with children introducing themselves and sharing their thoughts about how they were feeling in the group. This sharing helped to know the fears of the children and gave them a feeling that their thoughts are valued (Horstman et al., 2008).The researcher then explainedthe guidelines of the art-based intervention to the children such as the duration, attendance, respect for each drawing during sharing, confidentiality etc. Children were told that there is no perfect drawing and the focus is more on the process rather the final art product. This is important to avoid the child producing a drawing to suit the needs of the researcher(Horstman et al., 2008). A contract was signed by the group members with the above mentioned rules to promote group bonding

and accountability. A free drawing session allowed the children to explore the art materials and acquaint themselves with the nature of the art classes.

Group activity.The objective of this session was to develop a bond among the group members such that they are comfortable sharing their art as well as the stories expressed in them. According to Yalom, group is important as it helps in instilling hope,interaction,universality of problems and fostering altruism. He states that being around people who have similar experiences removes isolation, shame and stigma(Malchiodi,2003).Herman believes that a group offers its members a chance to learn from each other which promotes integration (Herman, 2015).In this task, the participants were asked to create a mural on earthquake as a group. They were given the freedom to discuss about the theme and were asked to share their experiences working as a team.

Teaching emotions through art. The objective of this two-part session was to teach children how to be aware of what they feel which will allow them to communicate their emotions through art. A study showed that emotions play an important role in trauma symptoms and it is important to promote effective emotion regulation skills(Erdur, 2002). In the first part of the session, children were taught about the emotions and were asked to create a visual representation based on their own personal experience. This was done to develop an awareness of the emotions they usually tend to adopt in their life. The session focused on the theme of best moment during the earthquake and sharing session encouraged them to use the feeling words they had learnt earlier. For the second part, the children were asked to state examples from their lives where they had experienced each emotion. While the first part prioritised positive emotions, in the second part children were asked to draw the worst moment of the earthquake. The awareness of the range of positive and negative emotions and the need to express the emotions in a healthy manner was stressed which was believed to be helpful for the future sessions.Malchiodi et al stress the need to encourage self-awareness, in

particular recognition of emotions, communication and self-regulation etc in the interventions for children in the age group of 7-12 years(Malchiodi et al., 2008 as cited in Malchiodi, 2008).This goal was achieved from this session which promoted emotion identification and emotion regulation.

Past, Present and future. The purpose of an autobiographical trauma timeline is to give context to the trauma by placing it in the past and identifying the missing details. Herman and Perry emphasise on the need to change the associations an individual has with the traumatic event(Herman, 2015; Perry & Szalavitz, 2007). After the feelings of safety within and with the members has been established, the themes of these sessions helped the children alter their understanding about the earthquake using art and develop hope to continue their lives despite the event.

In the past activity, children were asked to draw what had happened during the earthquake and the feelings they had experienced at the time of the disaster. The goal was to allow children to verbalise their trauma experiences within a safe environment. The purpose of the present activity was to see the current status of the children and the impact of the earthquake in their daily lives. Children were asked to draw how their lives had changed after the earthquake and the ways in which they were dealing with the event. At the end of the session,they were asked to share their current feelings about the earthquake.In the future activity, the children were given an opportunity to transform the trauma experience with the help of art. They were asked to imagine how their future would be despite the occurrence of the earthquake. The session was also focused on encouraging children to develop positive memories and help them understand that they cannot change the past but they have control over their reactions to it. Trauma affected children have a need to gain control so this activity offered them a way to influence the consequences(Perry & Szalavitz, 2007).These three

sessions were aimed at allowing safe expression of the traumatic memories and helping children understand that the trauma belongs to the past.

Learning from trauma. The objective of this session was to encourage children to identify the lessons to be learnt from the earthquake. This awareness will help them during the future stressful events as they will try to apply the past lessons as well as recognize new learning. The session also taught children how their experience can be valuable to others encouraging reconnection with the society (Herman, 2015). In this activity, children were asked to draw what they had learnt from the disaster and share their strengths with the group which aids in boosting resilience.At the end of the session, the children were told that the next session is the final one such that the children were prepared for closure.

Goodbye activity.The objective of the session was to provide a closure to the children and share their stories about the intervention.The children were asked to make a goodbye mural for the art class which depicted their journey as a group.After the drawing session, the researcher reviewed the skills they had acquired from the previous sessions and highlighted the progress they had made over the course of the intervention.The session concluded with free drawing activity and a personal note which was given to each child by the researcher.

Interview guide

An interview guide was developed to explore the elements of change, cultural influences and the coping strategies adopted by the children affected by earthquake in Nepal (Appendix G). The interviews were administered in Nepali language and transcribed into English for coding and validation of the results.

Procedure

The first pre-field survey was conducted in August 2017. Consent was taken from the four schools for exploring the state of art education in Nepal. Children studying in 2nd to 5th

grade were asked to make free drawings and their interest towards art was observed during the art sessions. The teachers were interviewed about the problems they had witnessed in the students when the schools reopened after the earthquake. They were also asked to fill the strengths and difficulties questionnaire to get their feedback about the tool.

A school in Bangalore was chosen for the second pre-field survey in February 2018. The institution gave consent to collect data from the children studying in 4th and 5th standard. Individual and group art sessions were carried out with eleven students to identify the effective mode of administration and outline for the art-based intervention. The researcher held discussions with an art teacher about the art materials used with children to ensure familiarity and ease of use for the children.

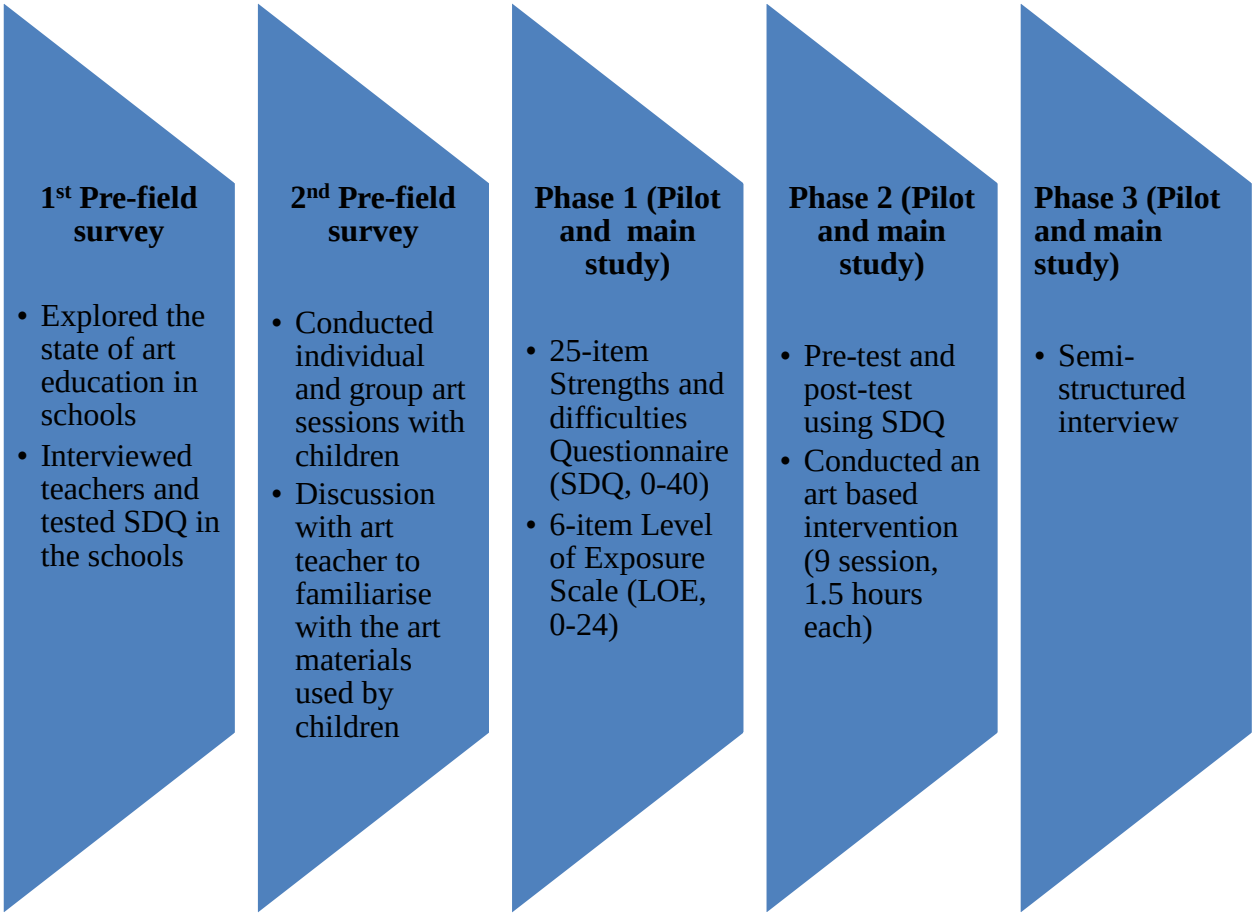
The researcher conducted a pilot study of the three phases between May to October 2018 to test the tools in the targeted population of children. Two schools from wards with high adult deaths in Kathmandu Metropolitan City were chosen for the study. Parental and institutional consent were taken prior to data collection while the children completed the assent forms. The pilot study identified the potential obstacles in data collection and the modifications to be made in the art-based intervention and the interview guide.

The main study included children from four schools belonging to wards with high adult deaths in Kathmandu Metropolitan City. The study lasted from July 2018 to December 2019. The children studying in 4th and 5th standard were initially screened in Phase 1 for high emotional problems using the level of exposure scale and strengths and difficulties questionnaire.For the Phase 2, the selected children from Phase 1 were randomly divided into treatment and control group. A pre-test was done using the strengths and difficulties questionnaire before the treatment group was exposed to the art-based intervention.The researcher conducted informal interviews with the class teachers of the students in the treatment group to collect information about their behavior at school (Appendix

H).Theparents/caregiver from both the groups were then again asked to complete the SDQ as a part of the post-test. After the assessment was completed, the control group was provided the art-based intervention. In Phase 3, few children were interviewed to improve the understanding of the quantitative data collected in the previous phases. This process of data collection from drawings, interviews and assessment from parents helped to gather information via multiple sources (Bal, 2008).This multi-dimensional approach helped to avoid parental bias and provided the opportunity to the children to share their experience as an active participant in the research process. Throughout the study, precautions were taken to ensure that the participants were not exposed to the art materials beforehand and distractions were kept to the minimum. The following figure provides an overview of the entire research process.

Figure 2

An outline of the research process


1st Pre-field survey
• Explored the state of art education in schools
• Interviewed teachers and tested SDQ in the schools
2nd Pre-field survey
• Conducted individual and group art sessions with children
• Discussion with art teacher to familiarise with the art materials used by children
Phase 1 (Pilot and main study)
• 25-item Strengths and difficulties Questionnaire (SDQ, 0-40)
• 6-item Level of Exposure Scale (LOE, 0-24)
Phase 2 (Pilot and main study)
• Pre-test and post-test using SDQ
• Conducted an art based intervention (9 session, 1.5 hours each)
Phase 3 (Pilot and main study)
• Semi-structured interview

Data analysis

Phase 1

Based on the normality of data, the impact of gender, level of exposure, socioeconomic status and type of family on emotional problems was analysed using the appropriate statistics.

Phase 2

A within samples t-test was used to analyse the difference in scores from pre-test to post-test between treatment and control group.Even though the pro-social behaviour subscale is not considered when calculating total difficulties score, the impact of the art-based intervention on this subscale was assessed to see whether the intervention can improve the sociability of the children which is important for better understanding of self and others. In this study, the drawings were analysed based on the narratives shared by the children after they had completed their drawings. The field notes taken during these explanations were the basis on which the relevant themes were identified from the drawings. It is a common approach to use the descriptions provided by the children to understand the drawings (Orr, 2007; Westrhenen & Fritz, 2014).

Phase 3

The researcher chose thematic analysis to identify the themes from the interviews. The method of analysis was guided by the work of Braun and Clarke (Braun & Clarke, 2006). All the interviews were transcribed from Nepali language to English and initial ideas were created by reading the transcripts and listening to the audio files. A preliminary data exploration was done using autocoding, word frequency and text search in Nvivo software. The researcher developed an initial coding framework and applied it to the entire dataset.The emergent codes were grouped into relevant themes and modifications were made as needed. A thematic network was developed to create a visual representation of the themes. Matrix coding was done using gender, age, level of exposure and type of school to identify the patterns in qualitative data to support the findings from the previous phases. A sentiment analysis was used to analyse the emotions of the participants as expressed in the interview sessions. The themes were renamed to capture the main idea of the grouped data. Finally, relevant extracts for the themeswere selected and compared with the existing literature.

Validity of the study

Survey tools

The consent forms, socio-demographic forms and level of exposure scale were translated into Nepali language by an official translator. The Nepali translation for strength and difficulties questionnairewas obtained from the official website.

Art-based intervention

The art-based intervention was validated by two international art therapists and a psychologist from Nepal. Their feedback about the activities were incorporated before conducting the pilot study. The researcher discussed the modifications with the experts and research supervisor to finalise the art-based intervention for the main study.

Interview guide

The interview guide was validated by two international art therapists and a psychologist from Nepal. Five of the interviews were coded separately by an external coder and the researcher to determine the inter-rater reliability. After the coding was completed, Kappa coefficient was calculated using the Nvivo software.

Ethical considerations

The study was approved by the Institutional Review Board of CHRIST (Deemed to be University), Bangalore and Nepal Health Research Council (NHRC), Nepal. A written informed consent was taken from the institutions as well as the parents/caregivers of the children. Children completed the assent forms in the presence of the researcher, and any apprehensions about the study were clarified prior to data collection. The data obtained was kept confidential and anonymity was maintained by using codes instead of names of the participants. Permission was taken from the parents/caregivers and the children to keep the

drawings and store the interview recordings with the researcher. The drawings were photographed and coded to use them in the study. The interview recordings were transcribed and any identifying information was removed from the transcripts. The collected data was stored in a password protected computer and a hard disk which was accessible only to the researcher.The control group was provided the art-based intervention after the research was completed.

Chapter 4

Results

This chapter has been divided into four sections to explain the findings of the research in a detailed manner. These main headings include first pre-field survey, second pre-field survey, pilot study and main study. Each part has subsections or phases which are elaborated below.

First pre-field survey

Four schools from Kathmandu Metropolitan City were selected for the first pre-field survey which was conducted in August 2017. In each of the school, free drawing session was conducted for children from 2nd to 5th grade. The researcher observed that children were interested in art and drawings were focused on objects of everyday life. A total of eleven teachers, four administrators and a school art teacher were interviewed regarding the response of the school after the earthquake, behaviour of the children after school reopening, current problems observed among children and status of art education in schools. The collected responses are described within each school heading whose name has been altered for confidentiality.

School AV

The teachers from School AV reported that after the earthquake, children were afraid of the aftershocks, tended to cry when they spoke about the earthquake and were curious about the aftershocks. This fear of the aftershocks exists till today as some of the children get scared when other children joke about the earthquake by engaging in behaviours such as shaking the bench to mimic the aftershocks. Teachers said that children studying in 3rd and 4th standard were more scared than the young ones as they understood what had happened. There were no complaints of problems being faced by children at home as a result of the

earthquake but some parents did report that their children expressed reluctance to sleep inside the house and wanted to sleep in the open.

With regard to disaster management, students were given information about the earthquake, a week focused on activities such as storytelling, dancing, singing, art etc was organised based on the suggestion of the teachers and children were encouraged to share their experiences and curiosities about the earthquake. Teachers believe that due to these classes students were willing to come to school. The art teacher shared that children from 4th, 5th and 6th grade had drawn themes such as fallen buildings, people being crushed in the rubble etc during the week of entertainment classes. But the current drawings do not reflect the issues of earthquake and are mainly focused on cartoons as seen in free drawing classes.At present, teachers believe that academic issues are the main problem rather than the earthquake. Children show signs of restlessness, lack of seriousness about studies but it was their opinion that children have forgotten about the earthquake.

School BH

The parents were initially worried about the safety of their children because they wondered if the earthquake occurred during school hours will the teachers save themselves first and forget about the kids. The school had to assure the parents before they were willing to send their children to school. There were no reports of children behaving differently at home due to the earthquake. Fear about the earthquake was present and interactions among children was comparatively less for 5-6 months after the reopening. There were talks among children about the aftershocks as some had occurred while they were at school.Teachers mentioned that older children noticed the aftershocks but in the case of younger children they did not react if the teachers were calm. Due to this reason, the teachers tried to remain calm during such tremors. However, none of the children displayed serious problems that needed special attention after the earthquake. Teachers shared that the location played a role in

reducing the impact of earthquake on the children as there was no physical damage or deaths in the locality. In the initial weeks, the children were engaged in activities such as dancing, singing etc to encourage them to attend school. Later on the focus was shifted to completing the coursework. The school had also conducted classes in the ground floor for sometime after the earthquake for safety reasons. The teachers complained that the children are disinterested towards studies and restless in class. The fear of the earthquake exists in the children even now but they believe it is not intense enough to disrupt their daily functioning..

School NS

Parents did not report their children being affected by the earthquake and there were no reports of deaths in the families of the students. However, many had lost their homes in the villages and over 200 children were given funds by the government for reconstruction. The children were quiet after they rejoined and the fights in school were also reduced. They showed signs of fear, anger, clinginess, being easily startled by sudden noises such as sound of shutters closing from outside the schools. A teacher shared a single incident of a student whose leg was trembling a lot after an aftershock. Rumours about the earthquake were corrected by the teachers and older children were more curious than the younger children. There was no noticeable gender difference in the response towards earthquake. Similar to the condition before the earthquake, boys took the situation lightly while the girls had more questions about the earthquake for a while.

Some parts of the school were damaged during the earthquake but none of the students were harmed as the earthquake had happened during the weekend. The government had provided aid to repair the school after which the school was marked as safe. Many organisations had come to donate items for the students but some of these items did not make sense to the teachers such as tents which made them feel as though the organisations were only following the protocols. One teacher remarked that there were positive effects of the

earthquake such as children were happy to receive aid, school got funds for repair which earlier was not a priority of the government etc. The teachers were also sent for training to handle the children after the earthquake.Counsellors had come to conduct classes and talkto the children about the earthquake. The children were eager to share their stories as most of the children come from neglected families and were happy that the school was being supportive. Counsellors had identified two children who showed symptoms of fear and sadness which required therapy then but are now back to their normal state. The school had organised extracurricular activities for the children for a month and some of the children from Class 5 had drawn houses and monument (Dharahara) being destroyed. However, such themes were not seen in the drawings later.It was surprising to the teachers that the children turned out to be more resilient than the adults.As the children are mostly from poor backgrounds, family problems are affecting them more than the earthquake. The children continue to struggle with academics and lack of support from their parents. Teachers also believe that children do not remember about the earthquake now and there are no suchlong term impact of the earthquake on children.

School FB

Children especially in primary level were afraid for two to three months after the earthquake. Whenever an aftershock occurred, these children would want to go to their parents. In the initial stages of school reopening, the parents would stay outside the school and children would be sent home with them if aftershocks occurred. Children did not want to leave their parents during school drop-off and this problem was seen more in girls than boys.Children had shared their fears about whether the school building will collapse with the teachers. Apart from one student who had lost her father during the earthquake, there were no other deaths or injuries reported in the school. A teacher explained how children used to be afraid if there was a lot of shouting as they thought it was a warning for the earthquake. She

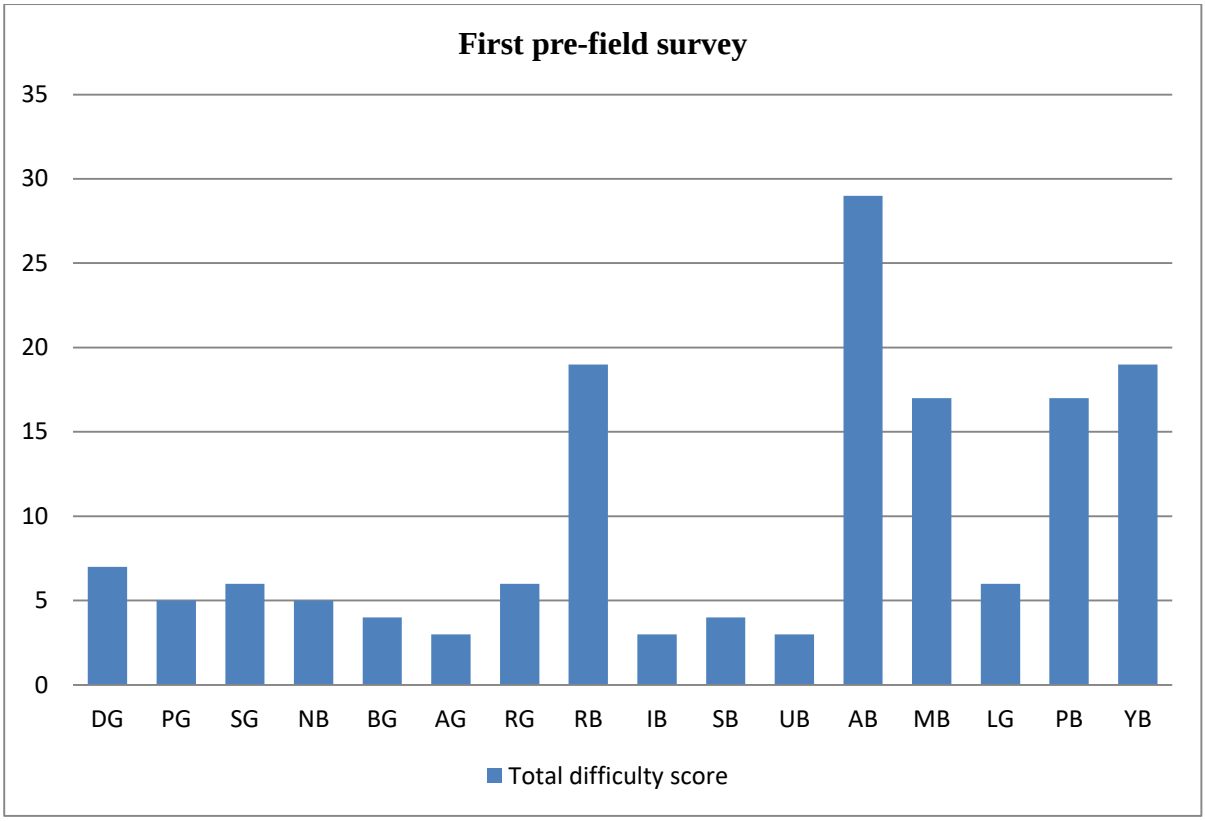
also narrated her personal incident at school regarding how during an aftershock children had panicked and pushed her in the stairs. After few months, the older children started to tease younger children pretending that it is the earthquake.When the school reopened, the teachers had conducted entertainment classes for two to three days.As a part of disaster training, regular drills were conducted to educate children about running to open spaces but the children started to regard it as a game.The issues reported among children included not listening to teachers, lack of attention from parents and negligence about studies.Teachers believe that if there are triggers then children will remember their experiences of the earthquake even now.

Teacher assessment using strengths and difficulties questionnaire

The class teachers from 2nd to 5th grade of the selected schools were asked to assess one student from their respective class. A total of 16 students (7 girls and 9 boys) were assessed using SDQ. The items of the teacher and parent version of SDQ are similar hence the teachers were asked about the ease and areas of difficulty while using the tool. The teachers reported that the language of SDQ was simple to understand and can be completed by parents with basic level of education. The data showed that five boys had scores on the higher range (total difficulty score above 10) which indicated that children were facing issues that needed further research. The above mentioned data is represented in the following figure.

Figure 3

Emotional problems among children of four schools in 2017



Second pre-field survey

Eleven students studying in 4th and 5th standard from a school in Bangalore were selected for individual and group art sessions. The researcher conducted this survey to identify the effective format of developing the intervention and improving familiarisation with the art materials for children. During the sessions, it was observed that boys tended to ask less questions and finished drawings quickly while the girls were hesitant to draw as they believed their drawings were going to be evaluated by the researcher. Children preferred group rather than the individual sessions but conflicts tend to arise in group work about sharing of art materials. When the rapport was built with the children, they were eager to come for art classes, brought their samples of drawings to show and asked for repetition of activities that they enjoyed the most. It was also noticed that children lose interest if the sessions are lengthy and the need for fun activities to be incorporated with the main theme of the session. Based on the discussion with the art teacher, suggestions were provided with

regard to the choice of paper and art materials that would promote expressiveness in the children.

Pilot study

Two schools (public and private) from a ward in Kathmandu Metropolitan City was randomly chosen for the pilot study which was conducted between May to October 2018.

Phase 1

A total of 114 students aged between 8 to 13 years were approached for the study. The children were studying in 4th and 5th standard at the time of data collection.The median(IQR) of the children was 10(1) years. Out of the 114 forms, 35 forms were not received, 12 forms were incomplete and 9 forms did not meet the inclusion criteria. The response rate was 69.3%. Among the 58 students in Phase 1, 28(48.3%) were boys and 30 (51.7%) were girls. 25 students (43.1%) were from a public school and 33 students (56.9%) belonged to a private school. The socio-demographic data of the participants are presented in Table 1.

Table 1

Socio-demographic characteristics of the study sample (N= 58)

Characteristics	*N*	%
Class		
Four	27	46.6
Five	31	53.4
Age		
8	5	8.6
9	17	29.3
10	25	43.1
11	7	12.1
12	2	3.4

13	2	3.4
Type of school		
Public	25	43.1
Private	33	56.9
Gender		
Boy	28	48.3
Girl	30	51.7
Religion		
Hinduism	48	82.8
Buddhism	4	6.9
Christianity	3	5.2
Islam	2	3.4
Not stated	1	1.7
Ethnicity		
Chhetree	8	13.8
Brahman-Hill	15	25.9
Magar	3	5.2
Tharu	2	3.4
Tamang	4	6.9
Newar	16	27.6
Kami	1	1.7
Musalman	2	3.4
Others	7	12.1
Socio-economic status		
Poverty group (Less than 19,261)	2	3.4
No poverty group (19,261 onwards)	29	50.0
Not mentioned	27	46.6
Type of family		
Nuclear	37	63.8
Joint	13	22.4
Separated	5	8.6
Divorced	1	1.7
Not stated	2	3.4
Father's education		
Illiterate	3	5.2
Literate	6	10.3
Below 10	7	12.1
SLC	18	31.0
Intermediate	8	13.8
Bachelor	7	12.1
Masters	3	5.2
Not stated	6	10.3
Mother's education		
Illiterate	11	19.0

Literate	4	6.9
Informal	1	1.7
Below 10	8	13.8
SLC	13	22.4
Intermediate	8	13.8
Bachelor	5	8.6
Masters	2	3.4
Not stated	6	10.3

Due to the lack of norms for the Nepali population, children with a total difficulties score of 12 and above were considered to fall in the group of high total difficulties. In a sample of 58 students, 14 (24.1%) , 20 (34.5%) and 24 (41.4%) children belonged to the high, average and low category of total difficulties score.

Table 2

Descriptive statistic of the total difficulties score

Total difficulties score	Low		Average		High	
	N	%	*N*	%	*N*	%
Class						
Four	10	37	11	40.7	6	22.2
Five	14	45.2	9	29	8	25.8
Age						
8	3	60	2	40	0	-
9	6	35.3	6	35.3	5	29.4
10	11	44	9	36	5	20
11	4	57.1	2	28.6	1	14.3
12	0	-	1	50	1	50
13	0	-	0	-	2	100
Type of school						
Public	5	20	11	44	9	36
Private	19	57.6	9	27.3	5	15.2
Gender						
Boy	12	42.9	6	21.4	10	35.7
Girl	12	40	14	46.7	4	13.3
Socio-economic status						
Poverty group (Less than 19,261)	0	0	2	100	0	0

No poverty group (19,261 onwards)	14	48.3	7	24.1	8	27.6
Not mentioned	10	37	11	40.7	6	22.2
Type of family						
Nuclear	15	40.5	13	35.1	9	24.3
Joint	6	46.2	4	30.8	3	23.1
Separated	2	40	2	40	1	20
Divorced	0	0	0	0	1	100
Not stated	1	50	1	50	0	0
Level of exposure						
Low	10	38.5	9	34.6	7	26.9
Average	10	55.6	6	33.3	2	11.1
High	4	28.6	5	35.7	5	35.7

A spearman rank order correlation was used to investigate the relationship between level of exposure and strengths and difficulties subscales. There was a significant medium positive correlation between level of exposure and hyperactivity-inattention scale in children (r=.30, $p < .05$). In the case of total difficulties score and other remaining subscales, there was no correlation with the level of exposure.

Table 3

Correlation between level of exposure and strengths and difficulties subscales

Measure	1	2	3	4	5	6	7
1.Level of exposure	-	.067	-.130	.032	.300*	-.050	.014
2.Total difficulties	.067	-	.762**	.776**	.658**	.590**	-
score	-.130	.762**	-	.552**	.259*	.352**	.315**
3.Emotional problems	.032	.776**	.552**	-	.466**	.279*	-.094
4.Conduct problems	.300*	.658**	.259*	.466**	-	.292*	-.296*
5.Hyperactivity	-.050	.590**	.352**	.279*	.292*	-	-
6.Peer problems	.014	-315**	-.094	-.296*	-.218*	-.348**	.218*
7.Prosocial							.348**
							-

*Correlation is significant at the 0.05 level(1-tailed)
**Correlation is significant at the 0.01 level(1-tailed)

The researcher conducted a bivariate analysis (Mann-Whitney U test and Kruskal-Wallis test)to explore the impact of gender, level of exposure, type of family and socio-economic status on emotional problems in children. The data showed that the hyperactivity-inattention subscale was statistically significant with level of exposure (p<0.05). This indicated that the children with high exposure had highest level of hyperactivity-inattention followed by low and average exposure. No significant differences in gender, socio economic status and type of family in relation to emotional and behavioural problems was identified in the study.

Table 4

Bivariate analysis of total difficulty score and the subscales of SDQ

Characteristics	TDS		*p*	EPS		*p*	CPS		*p*	HAS		*p*	PPS		*p*	PSS		*p*
	Mdn	IQR		Mdn	IQR		Mdn	IQR		Mdn	IQR		Mdn	IQR		Mdn	IQR	
Gender			.42			.12			.44			.62			.13			.67
Boy	8.5	9		3	4		1	3		3	3		3	3		8	3	
Girl	8	4		2	3		1	2		3	1		2	2		8	4	
Socio-economic status[¥]			.63			.49			.24			.62			.68			.25
Poverty group	9.5	-		3.5	-		-	-		-	-		-	-		6	-	
No poverty group	8	7		3	4		1	3		3	3		3	3		8	4	
Type of family[§]			.44			.28			.61			.24			.19			.87
Nuclear	8	6		3	3		1	3		3	2		2	2		8	3	
Joint	8	7		1	3		1	1		3	3		2	4		8	4	
Separated	8	10		2	5		2	2		2	3		1	1		7	3	
Divorced	-	-		-	-		-	-		-	-		-	-		-	-	
Level of exposure			.22			.56			.23			.01*			.65			.57
Low	8	7		3	2		1	2		2	2		2.5	2		8	3	
Average	7	5		2	3		0.5	2		2	1		2	3		8	3	
High	11	8		1.5	4		1	2		3.5	2		2	2		8	4	

Notes. Mdn=Median; IQR=Interquartile range; TDS= Total difficulty score; EPS= Emotional problems; CPS= Conduct problems; HAS= Hyperactivity-inattention; PPS=Peer problems; PSS=Prosocial behaviour.

[¥] Analysis done on 31 children due to missing data

[§]Analysis done on 56 children due to missing data

*$p<0.05$

Along with the socio-demographic data, parents were asked to mention about any changes they had noticed in their child after the earthquake. The observation of parents included behaviours such as increase in fear , inability to do tasks independently and lack of interest towards studies.

Phase 2

The researcher identified 14 children who had high emotional problems based on the assessment of the parents. These children were divided into treatment and control group based on the exposure level (Table 5). An art-based intervention was provided to the treatment group to demonstrate the efficacy of art in dealing with trauma memories to reduce the emotional problems in children affected by the earthquake. As the data was normal, a within samples t-test was performed to explore the changes in the two groups before and after the intervention.

Table 5

Division of children into treatment and control group (n=14)

Level of Exposure	Group		Total
	Treatment	Control	
High	3	2	5
Average	1	1	2
Low	3	4	7
Total	7	7	14

The results of the paired samples t-test for the treatment group show that the emotional problems(subscale) differs before the intervention (*M* =5.29 ,*SD* =1.25) and after the intervention (*M* =3.57, *SD* =1.27) at the .05 level of significance (*t*=9.30 ,*df*=6 ,*n* =7,*p*<.05 ,95% CI for mean difference 1.26 to 2.17 , *r*=.93).On average, the emotional problems was about 1.71 points lower after the art-based intervention (Table 6). Cohen's *d* was estimated at 3.49 which is a large effect based on Cohen's (1988) guidelines(Cohen, 1988). In the case of the control group, there was no statistically significant decrease in any of the subscales of SDQ from pre-test to post-test (Table 7).A graphical representation of the results of Phase 2 for treatment group (Figure 4) and control group (Figure 5) is provided below.

Table 6

Descriptive statistics and t-test results for treatment group (n=7)

Outcome	Pretest		Posttest		*n*	95% CI for Mean Difference	*r*	*t*	*df*
	M	*SD*	*M*	*SD*					
Total Difficulty score	15	2.83	13.29	4.86	7	-3.62,7.05	-.06	.79	6
Emotional problems	5.29	1.25	3.57	1.27	7	1.26,2.17	.93*	9.30*	6
Conduct problems	2.71	1.50	3	2.31	7	-2.83,2.26	.00	-.28	6
Hyperactivity	4.43	1.27	3.86	1.68	7	-1.49,2.63	-.12	.68	6
Peer problems	2.57	.79	2.86	2.27	7	-2.53,1.96	-.04	-.31	6
Prosocial	6.29	1.98	6.71	2.69	7	-2.11,1.25	.74	-.63	6

*p< .05

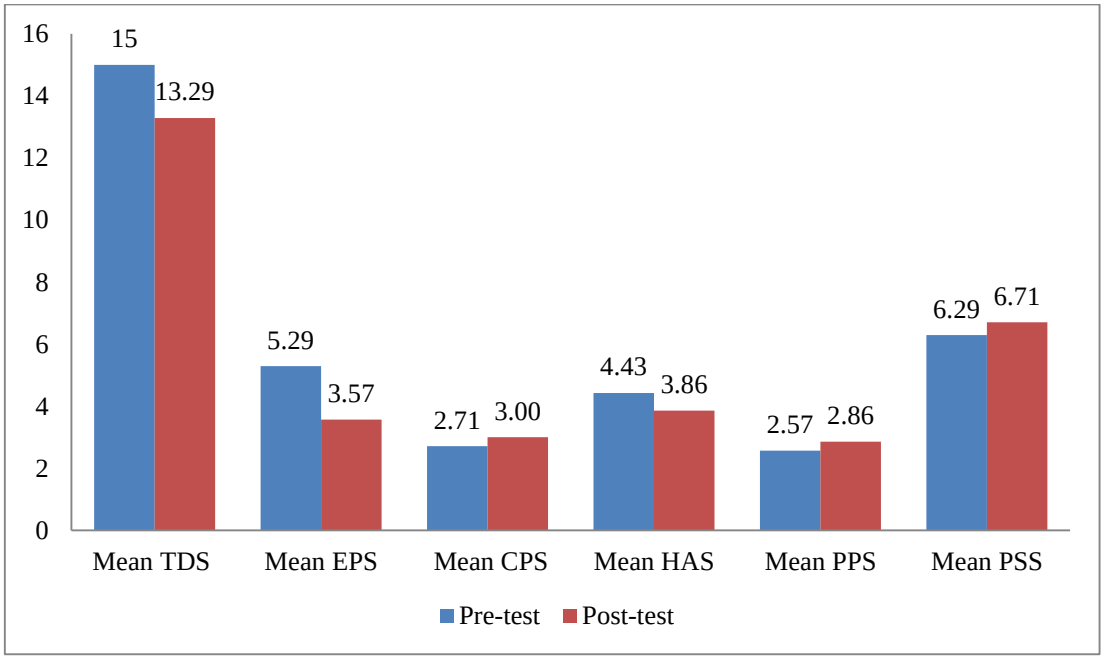
Table 7

Descriptive statistic and t-test results for control group (n=7)

Outcome	Pretest		Posttest		*n*	95% CI for Mean Difference	*r*	*t*	*df*
	M	*SD*	*M*	*SD*					
Total Difficulty score	14.29	7.37	14.14	6.96	7	-6.38, 6.67	.52	.05	6
Emotional problems	3.14	2.55	2.71	2.69	7	-2.23, 3.09	.40	.39	6
Conduct problems	3.57	2.07	4.14	2.34	7	-2.41, 1.27	.60	-.76	6
Hyperactivity	4.14	3.02	4.57	2.44	7	-2.49, 1.63	.69	-.51	6
Peer problems	3.43	1.72	2.71	1.98	7	-1.11, 2.54	.44	.96	6
Prosocial	7.57	1.72	6.29	2.98	7	-2.08, 4.65	-.14	.94	6

Figure 4

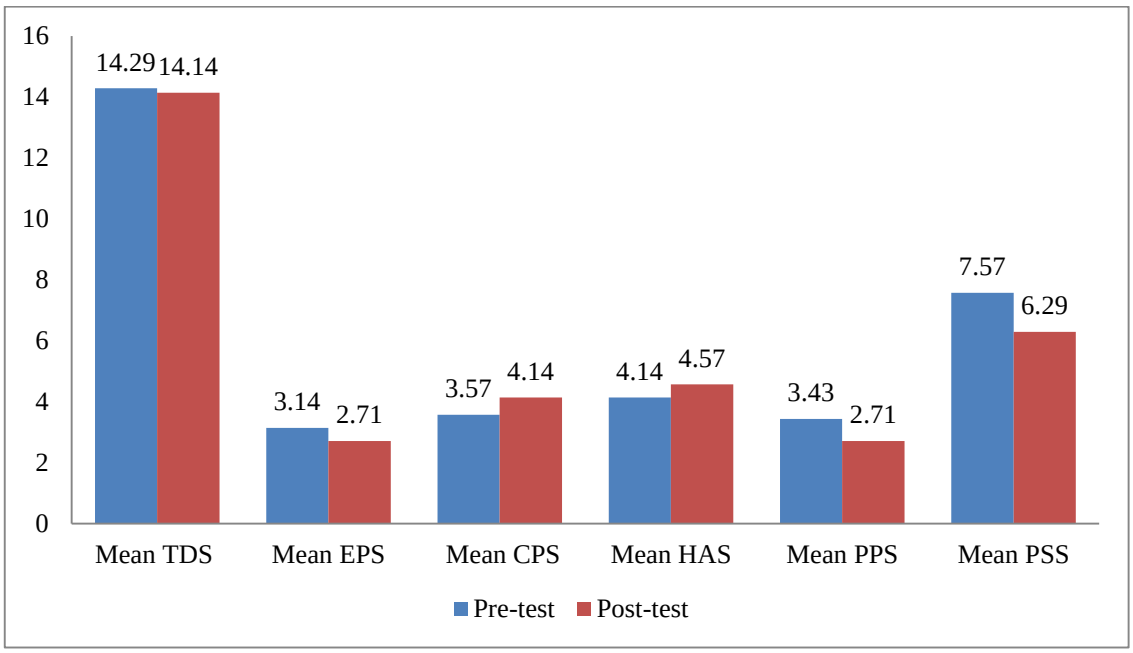
Graphical representation of pre and post-test for treatment group (n=7)



Note. TDS= Total difficulty score; EPS= Emotional problems; CPS= Conduct problems; HAS= Hyperactivity-inattention; PPS=Peer problems; PSS=Prosocial behaviour.

Figure 5

Graphical representation of pre and post-test for control group (n=7)

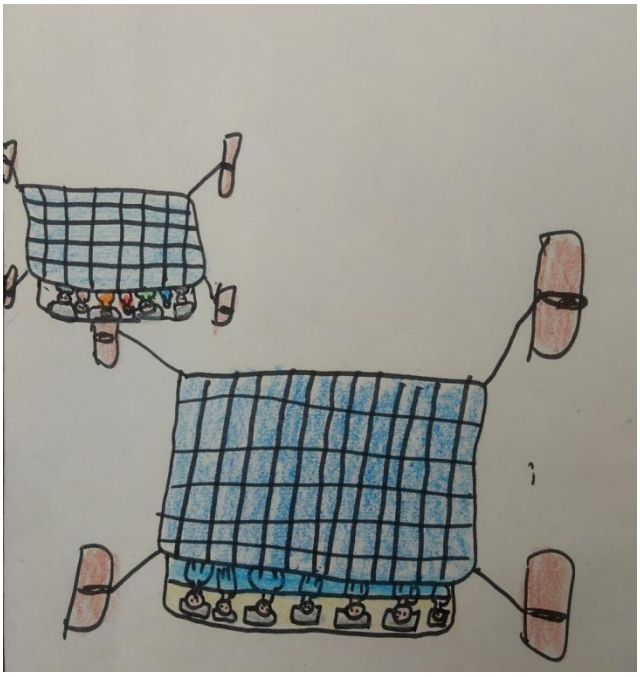


Note. TDS= Total difficulty score; EPS= Emotional problems; CPS= Conduct problems; HAS= Hyperactivity-inattention; PPS=Peer problems; PSS=Prosocial behaviour.

The exploration of the drawings of children revealed that even though the memories of earthquake are present, the children were able to focus on the positive aspects of the trauma and look forward to a better future. Various themes were identified from the drawings of children as they explored and shared their memories of the earthquake in the sessions of the art-based intervention. The themes included social support, elements of recovery, hope, disaster preparedness, influence of media, rescue and reconstruction, destruction and interoceptive sensations. Figure 6 portrays the theme of social support in which participant P6 fondly recalls living in the tents after the earthquake. Though she was afraid, being with her parents and friends helped her enjoy the experience of sleeping in tents. Social support is a protective factor which reduces the impact of trauma and promotes recovery.

Figure 6

Drawing representing the theme of social support



The second theme of elements of recovery is shown in Figure 7.In this picture, participant P3 depicted the early morning scene that happens in his house. He drew himself and his father going to buy milk every morning. He drew the scenes he witnesses of a man drinking tea next to a shop and people coming to give clothes to the DD tailors shop. The scene shows how the life in his neighbourhood has returned to its normal state after the disaster.

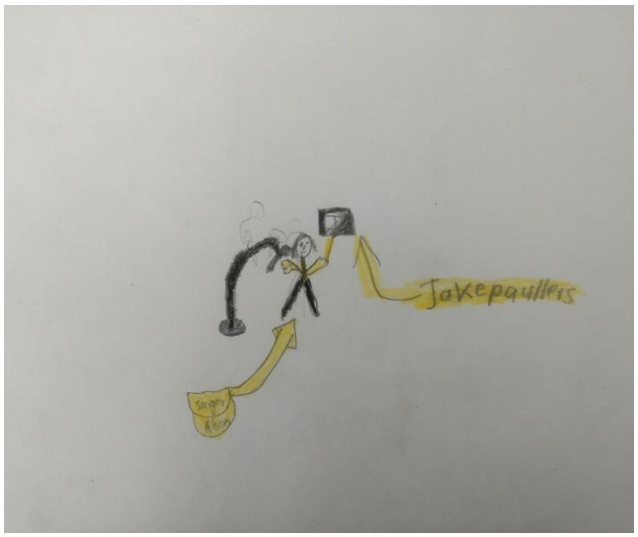
Figure 7

Drawing representing the theme of elements of recovery

The theme of hope is represented in Figure 8. Participant P1 described his plans to be singer when he grows up. He dreams of being famous like the YouTube influencers and shared his passion for singing. The picture depicts how the children have dreams that they are looking forward to and are learning to find a purpose in their life.

Figure 8

Drawing representing the theme of hope



The fourth theme of disaster preparedness is shown in Figure 9.In this drawing, Participant P7 drew buildings that are about to fall, a lady drinking polluted water (water that has blood as she remembers reading news which mentioned about a river being polluted by blood during earthquake), a girl standing and watching the building crumble, a girl running away from the building, people staying in an open field, a one storey house and a person going to stay in a house damaged by the earthquake. She expressed that she will go to an open field, stay away from big and broken buildings during tremors and not live in a damaged house if an earthquake occurs in the future. The drawing depicts the lessons children have learnt from their experience which is a safety skill that gives confidence to deal with a life-threatening situation rather than feel weak and hopeless.

Figure 9

Drawing representing the theme of disaster preparedness

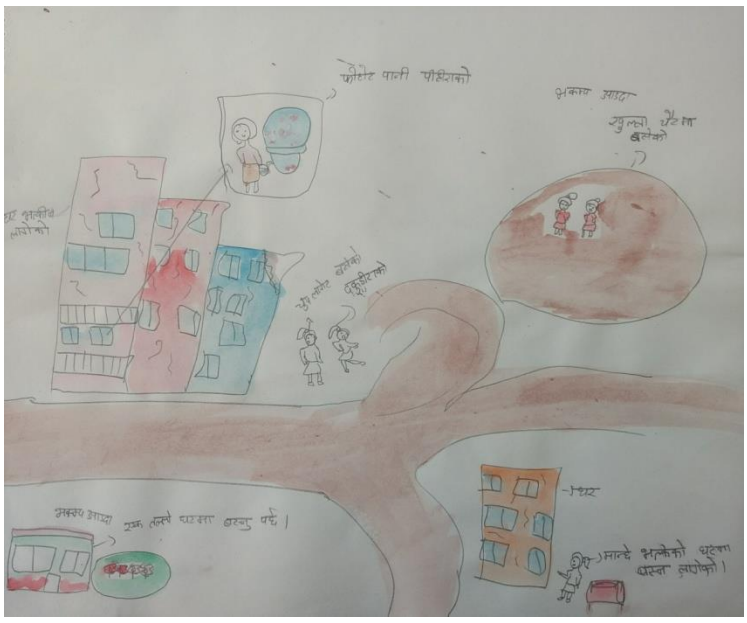


Figure 10 represents the theme of influence of media. In this picture, participant P2 drew a monument (Dharahara) in ruins, men with wounds on their head, damaged buildings,

hand coming out of a rubble and a part of the building fallen on the bridge. He expressed that he witnessed these images on the television after the earthquake. The picture indicates how media leaves an imprint in the young minds and the need to monitor the media exposure after a disaster.

Figure 10

Drawing representing the theme of influence of media

The sixth theme identified in the drawings was rescue and reconstruction. The drawing of Participant P6 expresses the theme of rescue (Figure 11). She recreated her earthquake experience in the drawing as she spoke about the people being carried away in stretchers to an ambulance, street dogs barking continuously and the birds flying in the sky.

The details remembered by the participant shows the role of sensory memories in trauma and the need to identify the sensory triggers to help the person recover completely from the experience. Participant P7 drew the changes in her life after the earthquake (Figure12). The left side of the drawing portrays the experience of going back to the village after the earthquake for two months. She recalls going to the forest to cut grass with her mom during this period. The other half of the picture contains images of buses, her house and the school in Kathmandu which narrates how her family returned to Kathmandu to restart their lives. The two parts in the drawing shows the changes in the living arrangements she had to adjust to after the earthquake.Many children and families are displaced after a disaster. Attention is given to the physical losses but the intangible losses also need to be processed to achieve complete healing from trauma.

Figure 11

Drawing representing the theme of rescue

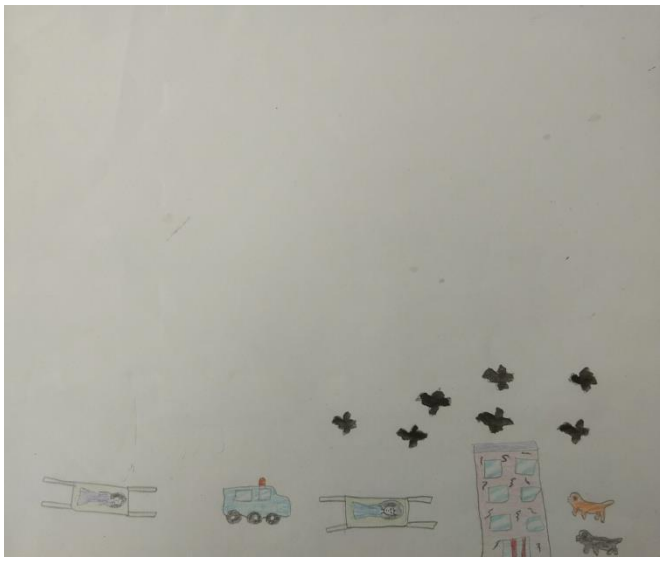


Figure 12

Drawing representing the theme of reconstruction

Figure 13portrays the theme of destruction in the work of participant P6. She drew the image of her house in the village which was damaged by the earthquake. She remembers the destruction to the top part of the house when she went to the village. Many families in the villages lost their homes as a result of the earthquake and had to migrate or live in temporary shelters due to the lack of funds to rebuild their homes.

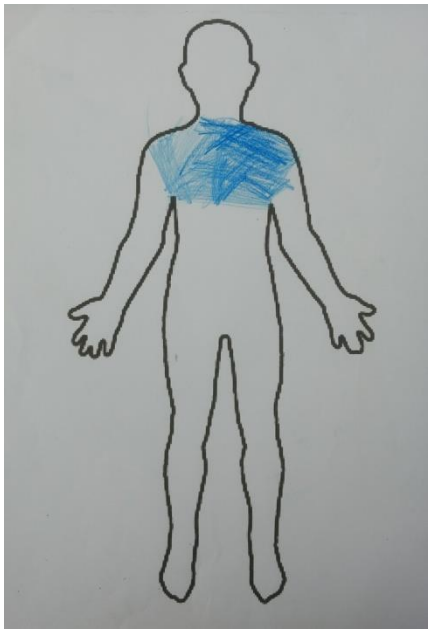
Figure 13

Drawing representing the theme of destruction

The final theme identified in the drawings was interoceptive sensations. As seen in the figure below, Participant P2 coloured the entire chest (Figure 14). He explained that as he started drawing, he experienced a tightness in his chest. In trauma work, teaching clients to notice the bodily sensations helps them to identify the early signs of triggers and self-regulate. The bodily awareness allows them to become comfortable with their sensations and learn to ground themselves if they are experiencing dissociation.

Figure 14

Drawing representing the theme of interoceptive sensations



Phase 3

A semi-structured interview was conducted with the seven students of the treatment group. Based on the responses to the interview questions and the feedback of the participants, the researcher was able to identify questions that were difficult for children to comprehend and the average time taken to complete a single interview. These two factors were important for further development of the interview guide and to plan the interview sessions for the main study. Some of the excerpts from the interview that highlight the experiences of the children in the art-based intervention are given below:

- " Anger reduced slowly slowly...and gave confidence, confidence about the future."(P2)

- " I like the group work of the art class but in the other group they don't give me work that is why." (P3)
- "One should not stay without talking also and now I have started talking so I find it good." (P6)
- "You had said right whenever you have tension, do art. I did that and that helped."(P7)

Changes after the pilot study

After the completion of the pilot study, the researcher identified the areas that needed improvement based on the feedback of the parents, children and the institutions. Changes were made in the consent forms to avoid confusion about the permissions to be granted by the parents and the institutions. During the administration of the art-based intervention, the activities that were confusing for the children were identified. For the main study, these activities were modified and the theme on emotions was divided into two sessions. The interview questions that were difficult for children to comprehend were reworded and based on the feedback from the children, questions about aftershocks were incorporated in the final interview guide.

Main study

Four schoolsfrom two highly affectedwards in Kathmandu Metropolitan City was randomly chosen for the main study. The study which was conducted between July 2018 to December 2019 included two public and two private schools.

Phase 1

The researcher identified 616 students aged between 8 to 14 years for the study. The children were studying in 4th and 5th standard at the time of data collection. The median(IQR) of the participants was 10(2) years. Out of the total sample, parents of 90

children did not give consent for the study while 72 children did not meet the inclusion criteria. The response rate was 85.4%. The final sample for the research was 454 students. In the sample, 208 (45.8%) were boys, and 246 (54.2%) were girls. The study consisted of 220 students (48.5%) from public schools and 234 students (51.5%) from private schools.Table 8 provides a detailed description of the socio-demographic characteristics of the sample.

Table 8

Socio-demographic characteristics of the study sample (N= 454)

Characteristics	*N*	%
Class		
Four	218	48
Five	236	52
Age		
8	26	5.7
9	88	19.4
10	182	40.1
11	97	21.4
12	38	8.4
13	17	3.7
14	6	1.3
Type of school		
Public	220	48.5
Private	234	51.5
Gender		
Boy	208	45.8
Girl	246	54.2
Religion		
Hinduism	346	76.2
Buddhism	81	17.8
Christianity	18	4.0
Islam	9	2.0
Ethnicity		
Chhetree	68	15.0
Brahman-Hill	67	14.8
Magar	32	7.0
Tamang	69	15.2
Newar	130	28.6
Musalman	8	1.8

Rai	8	1.8
Others	72	15.9
Socio-economic status		
Poverty group (Less than 19,261)	35	7.7
No poverty group (19,261 onwards)	257	56.6
Not mentioned	162	35.7
Type of family		
Nuclear	356	78.4
Joint	89	19.6
Divorced	7	1.5
Others	2	0.4
Father's education		
Illiterate	38	8.4
Literate	40	8.8
Below 10	103	22.7
SLC	91	20.0
Intermediate	61	13.4
Bachelors	53	11.7
Masters	26	5.7
Informal	1	2
Not stated	41	9.0
Mother's education		
Illiterate	73	16.1
Literate	45	9.9
Below 10	101	22.2
SLC	81	17.8
Intermediate	61	13.4
Bachelors	36	7.9
Masters	16	3.5
Not stated	41	9.0

Table 9 shows the data from strengths and difficulties questionnaire. Due to the lack of norms for the Nepali population, children with a total difficulties score of 13 and above were considered to fall in the group of high total difficulties. The results show that 149 (32.8%), 152(33.5%) and 153 (33.7%) children were in the high, average and low category of total difficulties score.

Table 9

Descriptive statistic of the total difficulties score

Total difficulties score	Low		Average		High	
	N	%	*N*	%	*N*	%
Class						
Four	76	34.9	64	29.4	78	35.8
Five	77	32.6	88	37.3	71	30.1
Age						
8	8	30.8	7	26.9	11	42.3
9	31	35.2	22	25	35	39.8
10	64	35.2	65	35.7	53	29.1
11	28	28.9	35	36.1	34	35.1
12	12	31.6	15	39.5	11	28.9
13	5	29.4	8	47.1	4	23.5
14	5	83.3	0	-	1	16.7
Type of school						
Public	64	29.1	77	35	79	35.9
Private	89	38	75	32.1	70	29.9
Gender						
Boy	63	30.3	67	32.2	78	37.5
Girl	90	36.6	85	34.6	71	28.9
Socio-economic status						
Poverty group (Less than 19,261)	9	25.7	14	40	12	34.3
No poverty group (19,261 onwards)	91	35.4	90	35	76	29.6
Not mentioned	53	32.7	48	29.6	61	37.7
Type of family						
Nuclear	121	34	121	34	114	32
Joint	29	32.6	28	31.5	32	36
Divorced	2	28.6	3	42.9	2	28.6
Others	1	50	0	0	1	50
Level of exposure						
Low	66	35.3	64	34.2	57	30.5
Average	44	34.1	40	31	45	34.9
High	43	31.2	48	34.8	47	34.1

A Spearman rank-order correlation was used to analyse the relationship between the level of exposure and the subscales of SDQ. The level of exposure had a significant positive correlation with total difficulties score (r=.078, p < .05) and peer problems (r=.079, p < .05) of the children (Table 10). The results accept the hypotheses that exposure to the earthquake is associated with long-term total difficulties and peer problems while rejecting any association of level of exposure with long-term emotional problems (subscale), conduct problems, hyperactivity problems and pro-social behaviours of the children affected by earthquake in Nepal.

Table 10

Correlation between level of exposure and strengths and difficulties subscales

Measure	1	2	3	4	5	6	7
1.Level of exposure	-	.078*	.013	.068	.059	.079*	-.062
2.Total difficulties score	.078*	-	.742**	.724**	.771**	.609**	-.314**
3.Emotional problems	.013	.742**	-	.372**	.402**	.291**	-.008
4.Conduct problems	.068	.724**	.372**	-	.473**	.327**	-.322**
5.Hyperactivity	.059	.771**	.402**	.473**	-	.319**	-.306**
6.Peer problems	.079*	.609**	.291**	.327**	.319**	-	-.344**
7.Prosocial	-.062	-.314**	-.008	-.322**	-.306**	-.344**	-

*Correlation is significant at the 0.05 level(1-tailed)
**Correlation is significant at the 0.01 level(1-tailed)

A bivariate analysis (Mann-Whitney U and Kruskal-Wallis test) was used to explore the impact of gender, level of exposure, type of family and socio-economic status on emotional problems of children (Table 11).The data showed that there were significant differences between boys and girls in terms of total difficulties score, conduct problems, hyperactivity-inattention, peer problems and prosocial behaviour (p<0.05) (Figure 15). This shows that the data accepts the hypotheses that gender differences exist in the long-term total difficulties, conduct problems, hyperactivity problems, peer problems and pro-social behaviours while rejecting any differences between gender and long-term emotional problems (subscale) of the children affected by earthquake in Nepal.

In terms of socio-economic status, it was identified that emotional problems (subscale) were greater for poverty group than for no poverty group (p< .05) which proves the hypothesis that level of long-term emotional problems (subscale) of the children differ on the basis of socio-economic status. In relation to long-term total difficulties and other subscales, there were no significant differences thus rejecting the hypotheses that level of long-term total difficulties, conduct problems, hyperactivity problems, peer problems and pro-social behaviours of the children affected by earthquake in Nepal differ on the basis of socio-economic status.

The results of the study show that type of family had no significant impact on the emotional problems thus accepting the null hypotheses that type of family has no significant difference on the long-term total difficulties, emotional problems (subscale), conduct problems, hyperactivity problems, peer problems and pro-social behaviours of the children affected by earthquake in Nepal. Finally, there were no significant differences in the severity of exposure in relation to emotional and behavioural problems in children.This rejects the hypotheses that level of long-term total difficulties, emotional problems (subscale), conduct

problems, hyperactivity problems, peer problems and pro-social behaviours of the children affected by earthquake in Nepal differ on the basis of severity of exposure.

Table 11

Bivariate analysis of total difficulty score and the subscales of SDQ

Characteristics	TDS		*p*	EPS		*p*	CPS		*p*	HAS		*p*	PPS		*p*	PSS		*p*
	Mdn	IQR		Mdn	IQR		Mdn	IQR		Mdn	IQR		Mdn	IQR		Mdn	IQR	
Gender			.01*			.75			.00*			.03*			.01*			.02*
Boy	10	8		2	4		2	3		3	3		2	2		7	3	
Girl	9	7		3	3		2	2		3	3		2	2		8	3	
Socio-economic status^			.30			.01*			.58			.25			.23			.48
Poverty group	11	9		4	3		2	2		2	3		2	3		8	3	
No poverty group	9	7		2	3		2	2		3	3		2	2		8	3	
Type of family			.85			.88			.54			.38			.27			.12
Nuclear	9	8		3	3		2	2		3	3		2	2		8	3	
Joint	9	8		2	3		2	3		3	2		2	2		8	3	
Divorced	9.5	14		3	4		2	2		2.5	6		1.5	4		6	6	
Others	-	-		-	-		-	-		-	-		-	-		-	-	
Level of exposure			.60			.97			.77			.49			.47			.54
Low	9	7		3	3		2	2		3	2		2	2		8	3	
Average	9	7		2	3		2	2		2	3		2	2		8	3	
High	10	7		3	3		2	2		3	3		2	2		8	3	

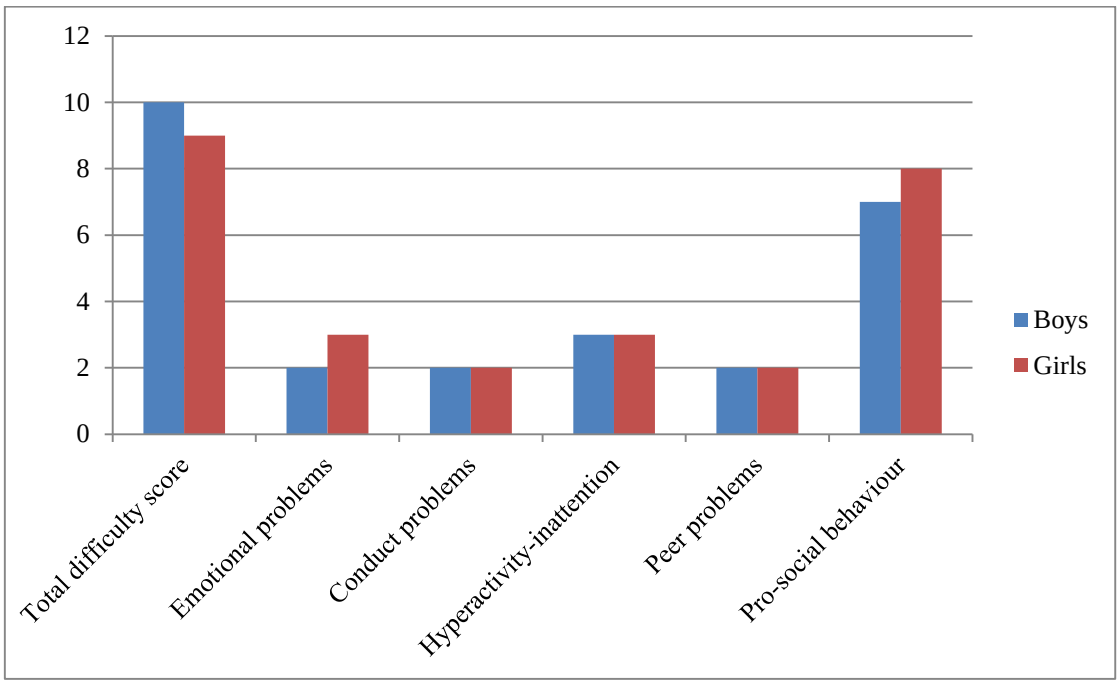
Notes. Mdn=Median; IQR=Interquartile range; TDS= Total difficulty score; EPS= Emotional problems; CPS= Conduct problems; HAS= Hyperactivity-inattention; PPS=Peer problems; PSS=Prosocial behaviour.

^Analysis was done on only 292 students due to missing data

*p <0.05

Figure 15

Bar graph depicting the median of boys and girls across the subscales of SDQ



A multiple linear regression was calculated to predict conduct problems based on gender, socioeconomic status, type of family and severity of exposure. A significant regression equation was found ($F(4,287)= 3.26$, $p<0.05$), with an r squared of 0.043 indicating that 4.3% of variance in conduct problems is explained by the model(Table 12). This is a "recommended minimum effect size representing a practically significant effect for social science data" (Ferguson, 2009).Both gender and severity of exposure were significant predictors of conduct problems. Of the two variables, gender is the better predictor of conduct problems ($ß=-.16$, $p<0.05$) as compared to severity of exposure ($ß=-.12$, $p<0.05$).

Table 12

Summary of the multiple regression analyses(N=292)

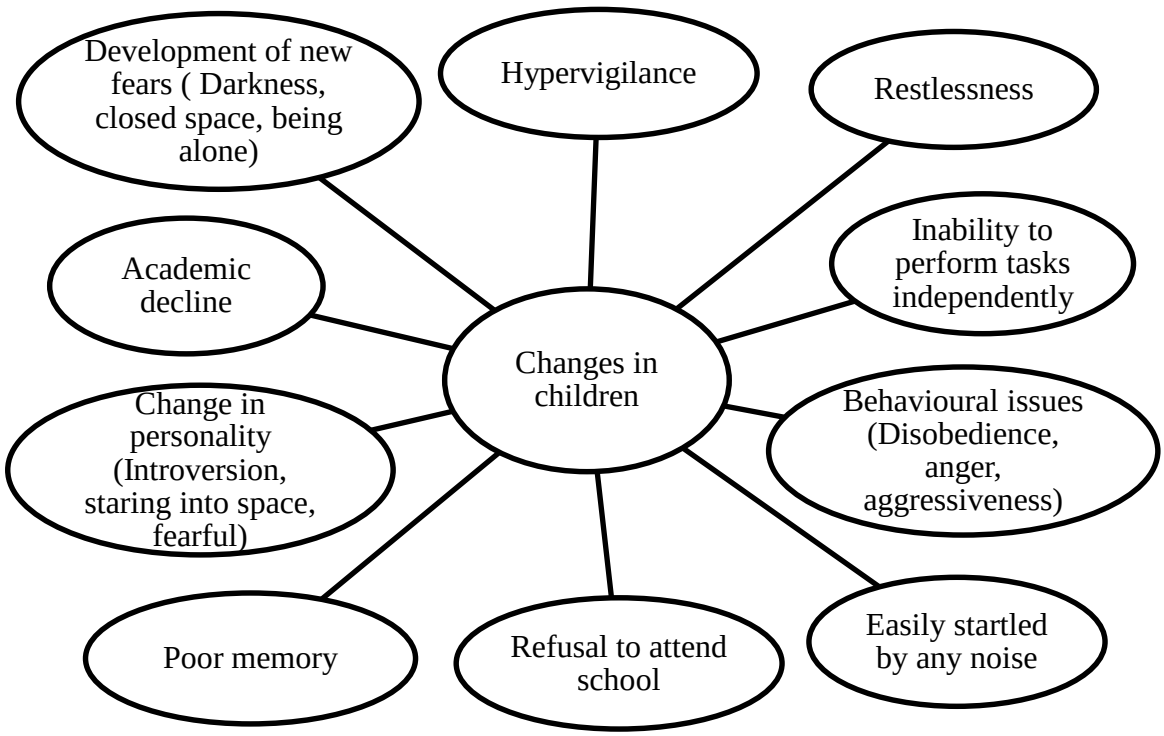
Variable	TDS			EPS			CPS			HAS			PPS			PSS		
	B	*SEB*	*β*	*B*	*SEB*	*β*	*B*	*SEB*	*β*	*B*	*SEB*	*β*	*B*	*SEB*	*β*	*B*	*SEB*	*β*
Gender	-1.6	.68	-.14*	-1.8	.27	-.04	-.56	.20	-.16*	-.46	.26	-.11	-.41	.19	-.13*	.33	.25	.08
Socioeconomic status	-.86	1.04	-.05	-.96	.42	-.14*	.02	.31	.00	.38	.39	.06	-.29	.29	-.06	.18	.38	.03
Type of family	-.12	.76	-.01	-.02	.30	-.00	-.12	.23	-.03	.03	.29	.01	-.02	.22	-.01	-.11	.28	-.02
Total LOE	.07	.11	.04	-.02	.04	-.02	.07	.03	.12*	.02	.04	.03	-.01	.03	-.01	-.00	.04	.00
R^2		.024			.020			.043			.014			.020			.008	
F		1.80			1.50			3.26*			1.03			1.45			.57	

*$p<0.05$

Along with the socio-demographic details, parents also reported about the changes in behaviour witnessed in their children after the earthquake. Their observations have been presented in Figure 16.

Figure 16

Parental observation of the changes in the children after the earthquake


Development of new fears (Darkness, closed space, being alone)
Hypervigilance
Restlessness
Academic decline
Inability to perform tasks independently
Changes in children
Change in personality (Introversion, staring into space, fearful)
Behavioural issues (Disobedience, anger, aggressiveness)
Poor memory
Refusal to attend school
Easily startled by any noise

Phase 2

In Phase 1, 149 children were identified to have high emotional problems. Out of the 149 children, 13 children had left school and parents did not give consent for 2 children. The pre-assessment was conducted on 134 students (90% of the cohort were traced). The results of the pre-assessment showed that there were 68 students who were in the high category of total difficulties score. Out of the 68 students, 60 students were divided into treatment and

control group based on the level of exposure and gender. The nature of division of the students into two groups is presented below.

Table 13

Division of children into treatment and control group (n=60)

Factor	Total sample	Treatment			Control		
		Low exposure	Average exposure	High exposure	Low exposure	Average exposure	High exposure
School							
School A	20	4	3	3	3	3	4
School B	13	2	3	1	1	3	3
School C	10	3	1	1	4	-	1
School D	17	3	1	5	4	2	2
Gender							
Boy	32	7	5	4	7	4	5
Girl	28	5	3	6	5	4	5

Due to the normality of data, a within samples t-test was used to analyse the differences between the treatment and the control group after the art-based intervention. In the case of treatment group, differences were seen in total difficulties score, emotional problems (subscale), hyperactivity-inattention and peer problems (Table 14). The total difficulties scorediffered before the intervention (*M* =17.33 ,*SD* =3.85) and after the intervention (*M* =11.83, *SD* =5.16) at the .05 level of significance (*t*= 4.39 ,*df*=29 ,*n*=30,*p*<.05 ,95% CI for mean difference 2.94 to 8.06 , *r*= -.14).On average the total

difficulties experienced was about 5.5 points lower after the art-based intervention. Cohen's *d* was estimated at 0.80 which is a large effect based on Cohen's guidelines(Cohen, 1988). In the emotional problems (subscale), difference was seen before the intervention (*M* =5.47 ,*SD* = 1.83) and after the intervention (*M* =3.37, *SD* =1.96) at the .05 level of significance (*t*=4.17 ,*df*=29 ,*n*=30 ,*p*<.05 ,95% CI for mean difference 1.07 to 3.13 , *r*= -.06).On average the emotional problems was about 2.1 points lower after the art-based intervention. Cohen's *d* was estimated at 0.80 which is a large effect (Cohen, 1988).

The hyperactivity-inattention score differed before the intervention (*M* =4.90 ,*SD* = 2.02) and after the intervention (*M* =3.50, *SD* =2.36) at the .05 level of significance (*t*=2.62 ,*df*=29 ,*n*=30 ,*p*<.05 ,95% CI for mean difference .31 to 2.50 , *r*= .11).On average the issues of hyperactivity-inattention was about 1.4 points lower after the art-based intervention. Cohen's *d* was calculated to be 0.50 which is a medium effect (Cohen, 1988). In the peer problems subscale, difference was seen before the intervention (*M* =3.57 ,*SD* = 1.89) and after the intervention (*M* =2.33, *SD* =1.49) at the .05 level of significance (*t*=2.80 ,*df* =29,*n*=30 ,*p*<.05 ,95% CI for mean difference .33 to 2.14 , *r*=-.01).On average the peer problems was about 1.2 points lower after the art-based intervention. Cohen's *d* was 0.51 which is a medium effect size(Cohen, 1988).The above results show that the hypotheses which states that art-based intervention has a significant impact on the long-term total difficulties, emotional problems (subscale), hyperactivity problems and peer problems of the children have been accepted by the study. However, the results failed to identify any significant impact of art-based intervention on the long-term conduct problems and pro-social behaviours of the children affected by earthquake in Nepal thus rejecting these hypotheses of the study.

In the case of the control group, there was no statistically significant decrease in any of the subscales of SDQ from pre-test to post-test (Table 15). The graphical representation of the results of pre and post-test for the both the groups are presented in Figure 17 and 18.

Table 14

Descriptive statistics and t-test results for treatment group (n=30)

Outcome	Pretest		Posttest		*n*	95% CI for Mean Difference	*r*	*t*	*df*
	M	*SD*	*M*	*SD*					
Total Difficulty score	17.33	3.85	11.83	5.16	30	2.94,8.06	-.14	4.39*	29
Emotional problems	5.47	1.83	3.37	1.96	30	1.07,3.13	-.06	4.17*	29
Conduct problems	3.40	1.61	2.63	1.67	30	-.08,1.61	.04	1.85	29
Hyperactivity	4.90	2.02	3.50	2.36	30	.31,2.50	.11	2.62*	29
Peer problems	3.57	1.89	2.33	1.49	30	.33,2.14	-.01	2.80*	29
Prosocial	7.43	1.83	7.47	2.37	30	-1.13,1.06	.05	-.06	29

*$p < .05$

Table 15

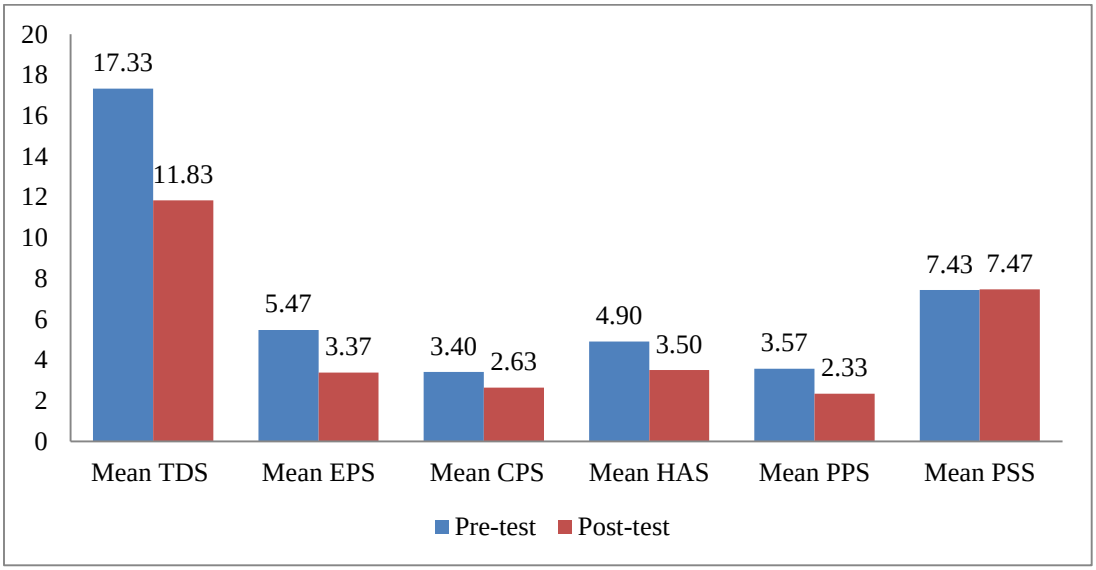
Descriptive statistics and t-test results for control group(n=30)

Outcome	Pretest		Posttest		*n*	95% CI for Mean Difference	*r*	*t*	*df*
	M	*SD*	*M*	*SD*					
Total Difficulty score	16.53	3.78	14.87	4.60	30	-.32,3.65	.20	1.72	29
Emotional problems	4.67	2.35	4.10	2.20	30	-.37,1.50	.40*	1.24	29
Conduct problems	3.37	1.77	2.73	1.91	30	-.37,1.64	-.07	1.29	29
Hyperactivity	5.20	1.90	4.80	1.60	30	-.38,1.18	.29	1.05	29
Peer problems	3.30	1.44	3.23	1.33	30	-.47,.60	.47*	.25	29
Prosocial	6.57	2.10	7.07	1.91	30	-1.38,.38	.32	-1.17	29

*p< .05

Figure 17

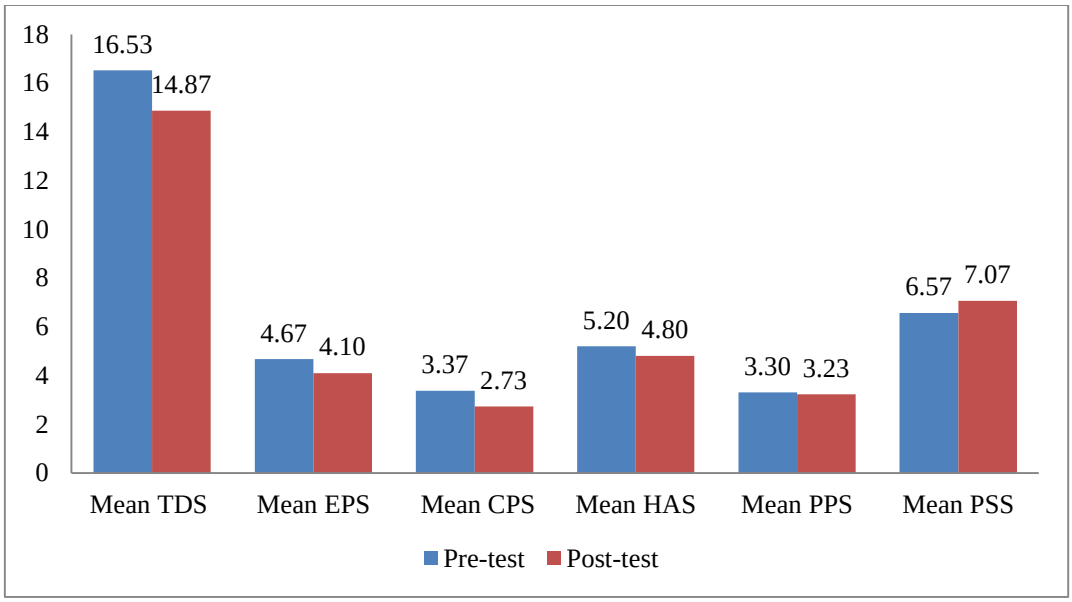
Graphical representation of pre and post-test for treatment group (n=30)



Note. TDS= Total difficulty score; EPS= Emotional problems; CPS= Conduct problems; HAS= Hyperactivity-inattention; PPS=Peer problems; PSS=Prosocial behaviour.

Figure 18

Graphical representation of pre and post-test for control group (n=30)



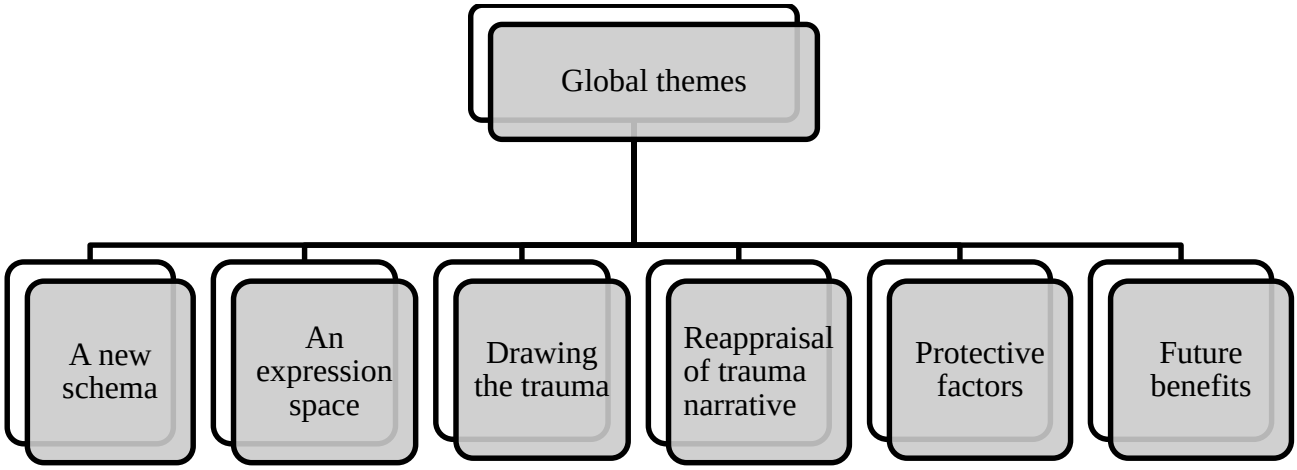
Note. TDS= Total difficulty score; EPS= Emotional problems; CPS= Conduct problems; HAS= Hyperactivity-inattention; PPS=Peer problems; PSS=Prosocial behaviour.

Phase 3

A semi-structured interview was conducted with 12 participants of the treatment group. A thorough analysis of the interviews identified 6 global themes, 31 organising themes and 199 basic themes.Based on the coding done by an independent coder and the researcher, the kappa coefficient was 0.50 which is considered to be a moderate reliability value(Landis & Koch, 1977). An overview of the themes has been presented below (Figure 19). The drawings of the children that support the themes have been explained along with the extracts from the interview.

Figure 19

An overview of global themes in the interviews of children (n=12)



1.A new schema. For many children in the research, it was the first time being exposed to the concept of an earthquake. The disaster tested their coping abilities and created a different life where they had to constantly adjust to the novel challenges associated with the experience.

Table 16

Global theme 1: A new schema

Global theme	Organising themes	Basic themes
1. A new schema	1.1 Cultural elements related to trauma	1.1.1 Customs and rituals 1.1.2 Fear of supernatural 1.1.3 Spiritual healing
	1.2 Initial effects of trauma	1.2.1 Anger 1.2.2 Bodily sensations 1.2.3 Bullying 1.2.4 Destruction

	1.2.5 Fear 1.2.6 Nightmares 1.2.7 Poor health 1.2.8 Positive effects 1.2.9 Trauma reminders(General) 1.2.10 Trauma reminders(Visual) 1.2.11 Virtual triggers
1.3 Objects associated with fear	1.3.1 Death 1.3.2 Earthquake 1.3.3 Generic 1.3.4 Loud sounds 1.3.5 Movement 1.3.6 Physical objects
1.4 Impact of aftershocks	1.4.1 Anger 1.4.2 Fear 1.4.3 Fun 1.4.4 None 1.4.5 Reminder of the event 1.4.6 Thoughts of reoccurrence

---

1.1 Cultural elements related to trauma. A glimpse of the cultural background of the children was seen in the way children reacted to the disaster. Every society deals with loss differently and the earthquake exposed children to the rituals of mourning and the social bonds that are set into motion during a crisis. These rituals are a protective factor as they allow people to process their grief and learn to handle the loss of their loved ones.

"Ba had passed away and I had to go a pond. I felt like crying so much."(P817, personal communication, December 1, 2019).

The belief system of the society is inculcated in the members since birth. The causes behind the mysteries of human existence are explained and is applied by children when they encounter an unknown object. People in Nepal believe in the supernatural powers and stories of the spirits are passed on to the children sometimes as an oral history and in other situations a way to make peace with what has been lost.

"Ghost scared me in the shop also so I am scared to go there as well."(P352, personal communication, November 27, 2019).

The members of the society also use the supernatural beings as a way to discipline children and this fear becomes a part of the child's life making them associate every experience of threat with the supernatural objects. A drawing by P837 explains this behaviour as he describes his fear of ghosts which he considers to be a negative aspect of his life.

Figure 20

Drawing representing the theme of fear of supernatural(P837)

In Nepal, before the arrival of modern medicines the people used to visit the spiritual healers. Though the numbers of people visiting spiritual healers have reduced, the trust in their magical powers continues till today. In the villages, people with all forms of ailments, mental or physical, visit the community healers first before they seek modern treatment. When the earthquake struck, the power of nature was re-established making people seek these healers who are believed to be in touch with the natural force. Some sought healing from their fears while others relied on the spiritual realm for protection against further harm.

"That I used to take the name of Hanuman and wish may earthquake not come again and go."(P702, personal communication, November 27, 2019).

1.2 Initial effects of trauma.Disaster brings a multitude of emotions in the affected population. Children experienced a threat to their survival after the earthquake. The trauma event was common but the reactions to it differed among the children. P145 transformed his feeling of helplessness to prevent the earthquake into anger as he expressed his desire to kill the earthquake if it was a person.

"Because it always kill people so why cannot we kill it. It has killed more than thousand people so what will happen if we kill one person."(P145, personal communication, November 20, 2019).

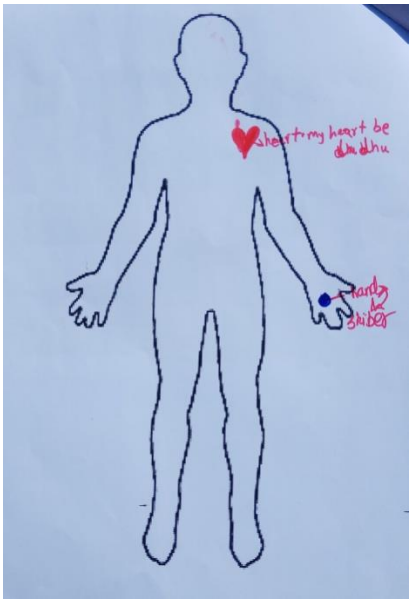
Even after the trauma has passed, the sensory memories tend to cause bodily reactions. The impact of these reminders show the mind body connection as seen from the description and drawings used by children to describe their experiences .

"I used to shiver."(P130, personal communication, November 21, 2019).

During the art-based intervention, children identified the areas in their body where they felt sensations as they recalled their trauma experience. In the drawing by P702, he labelled his heart and hands as the area of sensation. He described how his heart was beating fast and hands were shivering as he drew the experience in the session.

Figure 21

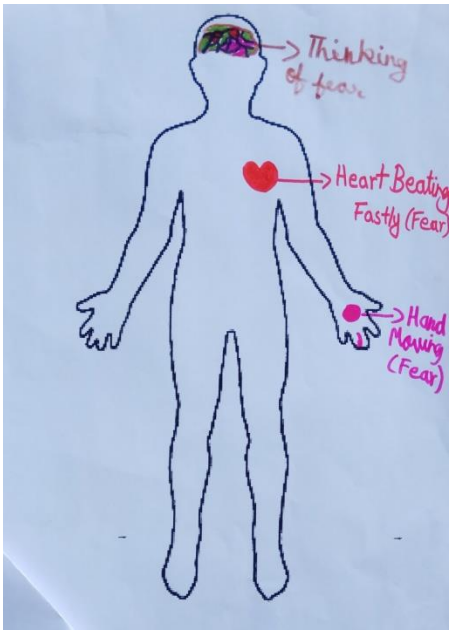
Drawing representing the theme of bodily sensations(P702)



Another drawing by P733 gives a similar account of the felt sensations. She narrated how all her thoughts were focused on the experience of fear . This attention led to her heart beating fast and her hand moving faster in response to the fear. She was able to experience how the mind and body work together and how body can be a cue to understand one's feelings to a situation.

Figure 22

Drawing representing the theme of bodily sensations(P733)



After disasters, the goal of the community is to re-establish the routines that were put on hold by the event. For children, reopening of schools signals the return to normalcy. However, not all children are ready to socialise as they are processing the experience. As middle childhood is an age where children learn from their peers, the opinions of friends tend to leave an impression in the concerned child. P702 shared how he was bullied for being afraid of the earthquake. While fear was a normal response to the event, the learning in society that fear is a weakness which was reinforced by his friends made him believe that he was a coward for being afraid of the earthquake.

> *"They used to say, see such a coward."* (P702, personal communication, November 27, 2019).

Earthquake exposed children to the scenes of death and destruction. Some lost their homes while others watched people being killed by the rubbles. The visuals they witnessed

stayed with them even after four years of the earthquake when they drew their memories in art sessions.

> *"It destroyed our such a nice house in the village."*(P145, personal communication, November 20, 2019).

In the drawing by P233, he drew a scene he witnessed after the first earthquake. A building had collapsed and people who were buried were being taken out from the rubble. He also drew a vegetable seller who would have been injured if he had come a little earlier.

Figure 23

Drawing representing the theme of destruction(P233)

P837 drew the destruction of Dharahara which is a famous structure in Kathmandu. Like many others, he recalled seeing the footage of the broken Dharahara in the news. This image was very popular post-earthquake and garnered a lot of media attention both nationally and internationally. This drawing represents how the structure became a common symbol of destruction after the earthquake in the society.

Figure 24

Drawing representing the theme of destruction(P837)

An encounter with trauma threatens the survival of individuals. Even after the danger has passed, the nervous system takes time to return to its normal state. In the case of children, during the earthquake they experienced intense fear especially because it was a new experience. Some were separated from their parents which increased the level of fear. The constant reminders of the event in the form of aftershocks, loud noises etc sustained their fear thereby making it difficult to recover from the earthquake.

> *"When the earthquake came because of the fear, I stayed outside instead of going inside the house."* (P202, personal communication, November 20, 2019).

Dreams allow individuals to process information which are threatening to acknowledge in wakeful state. Children in the research reported experiencing nightmares as a result of the earthquake. The loss of a close friend, scenes of people dying and the

experience itself was difficult for children to find a resolution in conscious state. Due to this reason, these conflicts replayed in their sleep until they found an appropriate outlet to these issues.

> *"Like in real it used to come. It used to come like this, earthquake crushed people and in dreams also earthquake crushed people like that."*(P145, personal communication, November 20, 2019).

P658 found a channel in the form of art to express his nightmares in one of the sessions. He drew the violent death of his friend as a result of the earthquake. He explained how his friend visits him often in his dreams. His dreams consists of seeing his friend dying, screaming and his brains coming out as a result of the fall. As seen in the picture, red colour behind the figure's head represents the pool of blood that his friend was lying in after the earthquake. He feels like crying when he sees these dreams but also added that he has mixed feelings about them. Sometimes he wishes these dreams should not come and other days he feels these dreams are a way to remember his friend. He also shared how he feels bad when he sees the dream as he remembers how he used to beat his friend when he was angry and the bad things he spoke about him. He feels he should not have done those things to his friend when he was alive and should have played with him .As his parents do not know about the impact of this incident on him, he was unable to properly grieve the loss of his close friend which resulted in the nightmares being a constant part of his life.

Figure 25

Drawing representing the theme of nightmares(P658)

Physical health is interconnected with mental health and an imbalance in either leads to poor health. When a person experiences stress, the systems of the body undergo changes mainly due to the release of the stress hormone, cortisol. The constant exposure to stress weakens the immunity of the person thereby making them vulnerable to illnesses.

> *"I used to be frequently sick at that time."*(P202, personal communication, November 20, 2019).

Disasters create disturbance in the social lives of individuals. In the initial stages of disaster, it may be hard to see any positive aspects of the event. But as the life returns to normal, individuals are able to reflect on the experience and identify the lessons from the recovery phase. Some of the children recalled the moments which were enjoyable during the aftermath of the earthquake such as being together with family, learning how to protect themselves, visiting their villages etc.

"Everyone stays together when earthquake comes that is why."(P402, personal communication, November 28, 2019).

P837 described how he enjoyed staying at home after the first earthquake. He drew himself as being happy after receiving a call from the school about the holidays.

Figure 26

Drawing representing the theme of positive effects(P837)

Another child (P702) described the moment when they stayed outdoors due to the fear of the earthquake. After the first earthquake, they were living in the premises of a government building. He drew himself with his sister running towards the tent and fondly recalled how he spend the days riding his cycle, chasing after cars and making helicopters out of paper.

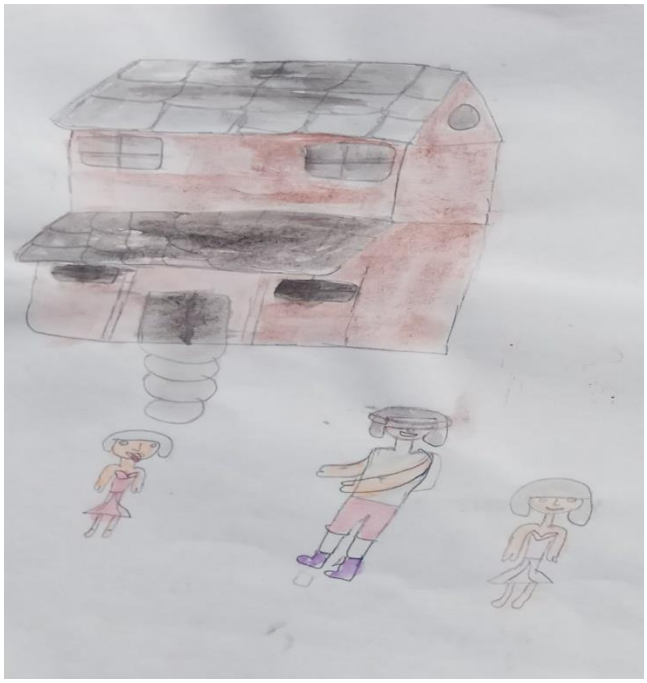
Figure 27

Drawing representing the theme of positive effects(P702)

A similar experience was shared by P711. After the earthquake, she was taken to another city. She narrated how she spend the days roaming around the village and playing games with her aunt and cousin. The drawing depicts a blindfold game in action where her aunt is trying to catch her and her cousin. She is standing behind her aunt trying to hide and her cousin is teasing her aunt.She remembers enjoying this game a lot and this brings happiness to her.

Figure 28

Drawing representing the theme of positive effects(P711)



For P547, living in tents was the most memorable experience of the earthquake. He stayed in the tent after both the earthquakes along with other members of his family. He remembered how he enjoyed eating food inside the tents and being able to talk to everyone as they were all in the same tent. He was not afraid at night as he was with his family and there were other tents in the open field.

Figure 29

Drawing representing the theme of positive effects(P547)

Some of the participants in the interview described the pervasive nature of trauma. For these children, the thoughts of trauma invaded into their everyday activities like watching television, helping with household work, walking on the streets etc. They were on a constant alert for another earthquake which prevented them from enjoying their life.

"Whether earthquake will come again that was constantly on my mind. Earthquake will come again like that."(P130, personal communication, November 21, 2019).

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Humans store information through various sensory modalities such as olfactory, auditory, visual etc. Children experienced trauma reminders in the form of the scenes they had witnessed during the earthquake. Any cue similar to the actual event reminded the children of the destruction caused by the earthquake.

"If there is an accident, if someone died when it happens like that."(P837, personal communication, November 29, 2019).

P826 shared how watching news about death in the television reminds her of the deaths she witnessed after the first earthquake. The drawing depicts the fire that was caused

by the earthquake when she was with her mother outside a shop. When the earthquake came, everyone ran out outside and she heard people screaming for help. As she looked around, she saw that a house that was on fire. Two people were sitting on the window screaming for help who were later rescued by the fire brigade. There were vehicles around and people were watching the fire like her. There was a lot of smoke in the air as represented by the black colour in the picture. It was later known that the cause of the fire was a gas explosion and there were casualties. No other houses were impacted by the fire. She was upset seeing this incident and whenever she is reminded of itshe tries to distract herself though it is not effective.

Figure 30

Drawing representing the theme of trauma reminders(P826)

Some children recalled the discomfort they experienced when they witnessed scenes of death due to the earthquake in the media. These virtual triggers reminded of them of their experience which further increased their fear.

> *"It used to show in TV in that...That because of the earthquake house being broken and because of stones falling on their head."*(P702, personal communication, November 27, 2019).

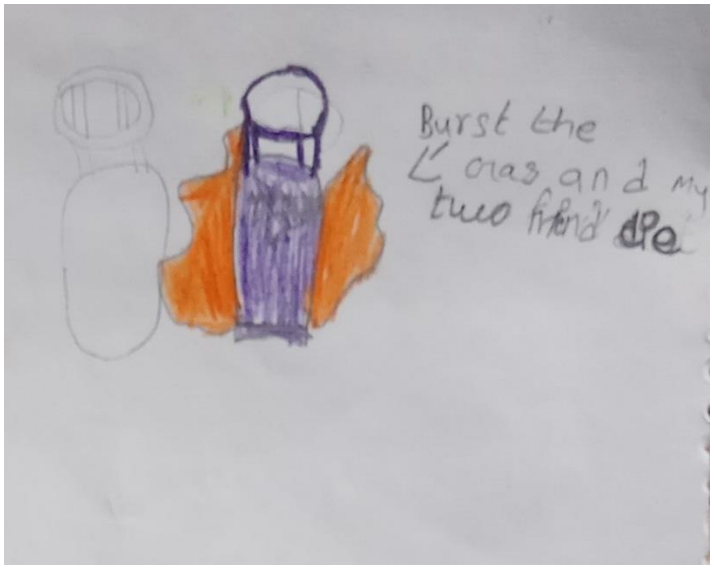
1.3 Objects associated with fear. Children developed fear associations based on their experience which impacted their daily life. A close encounter with death made children believe that they were at risk even after the earthquake. Being a witness to the deaths of children similar to their age further reinforced this pattern of thought.

> *"Before I used to think like how earthquake crushed people, it will also crush me one day."*(P145, personal communication, November 20, 2019).

A drawing by P437 portrays her sadness of losing her friend due to the earthquake. She explained that after the first earthquake, she had gone to visit her friend who lived nearby. When she reached the house, she saw that the people were gathered and the friend's parents crying outside. It was a typical morning at her friend's house. Her parents had gone for work early in the morning and both the sisters were busy cooking in the kitchen.When the earthquake came, the gas cylinder which was placed on the top fell due to the tremors and it exploded. Both the sisters died and she explained that their bodies were in parts. She also explained how the head was detached from the body which was a detail that came to her mind often. She had shared this experience with her mother who advised her not to think of such events as it will only cause pain.

Figure 31

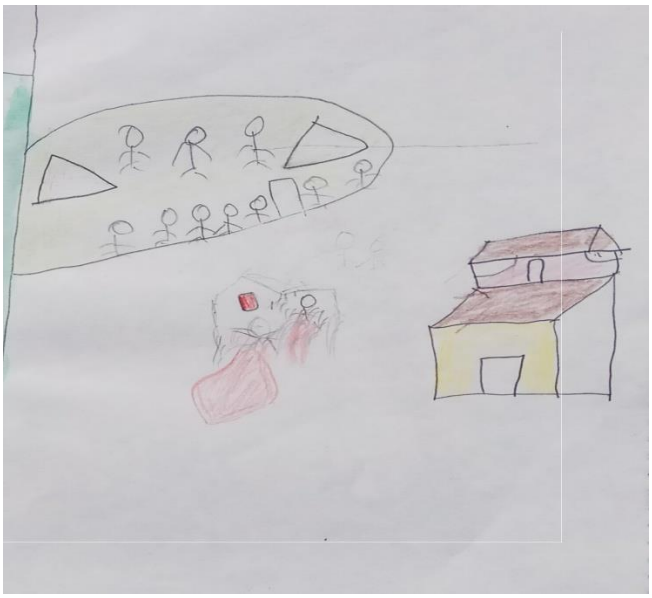
Drawing representing the theme of death (P437)



Another child in the intervention narrated the scene of death she witnessed after the second earthquake. P112 was living in the open field with her family when the second earthquake occurred. The house next to the field collapsed due to which a person was buried by the rubble. None of the people around her moved till the tremors stopped and they all watched the destruction from the field. When the earthquake stopped, the army came to rescue the people. One person was killed while the other person was injured. The injured person's back was broken and blood was coming out of him. Later on a brick fell on him as depicted by a red brick about to fall on the person's head.The dead and the injured were taken to the hospital.The other house next to it was not damaged. This was the first time she saw death due to which she was scared and she held on to her mother who told her not to see the accident.

Figure 32

Drawing representing the theme of death (P112)



The feelings of safety were taken away by the earthquake. Due to this, children lived in constant fear of the earthquake. The unpredictable nature of earthquake and lack of knowledge about self-protection made them view earthquake as a source of fear.

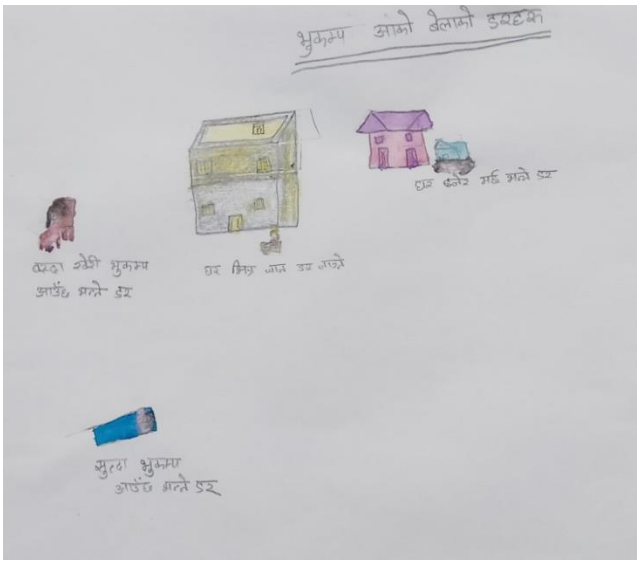
> *"I used to feel that earthquake will come and my hand will be stuck again."*(P130, personal communication, November 21, 2019).

P202 in her picture titled "Fears during the earthquake" elaborated about the different fears she had about the earthquake. Her fears include fear of earthquake coming when sitting, fear of going inside the house, fear of dying by house falling on her and fear of earthquake coming when sleeping. During the first earthquake, she was at home with her aunt, sister and brother. When the earthquake came, she did not know what it was and wondered why the

house was shaking. It was her aunt who said that it was an earthquake and asked everyone to run to the field. They ran outside the house as the earthquake was ongoing. When she is about to sleep, she has the fear that another earthquake will come. When this particular fear comes, she covers herself with the blanket and tries to sleep. When the aftershocks occur, she is reminded of this fear even more.

Figure 33

Drawing representing the theme of earthquake(P202)



In some situations, the fear did not have a particular source but it was generalised to all aspects of life. Children reported being more fearful after the earthquake and hesitated to do their everyday activities.

> *"That I used to be afraid to go to toilet."*(P702, personal communication, November 27, 2019).

Some children developed a sensitivity to sound. They reported being afraid of loud noises which startled them such as people talking loudly, dishes being washed, clothes being dried etc.

> *"That because of loud noise from building house I was scared."* (P702, personal communication, November 27, 2019).

The main characteristic of an earthquake is the movement. Any form of movement of the body such as walking on a suspension bridge, shaking of the bed etc triggered a fear response in the children.

> *"Before when I slept on the bed when because of other's leg it used to shake and I used to think earthquake has come and be scared."* (P702, personal communication, November 27, 2019).

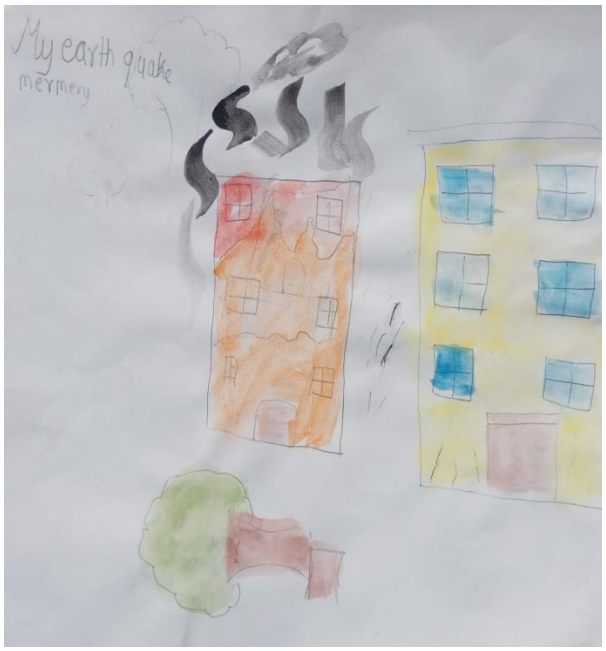
Children saw the destruction of houses after the earthquake. This made them perceive physical objects as a symbol of fear as it restricted people and prevented escape.

> *"House will shake and collapse that's it."*(P837, personal communication, November 29, 2019).

The fear of being stuck inside a house was described by P817. Her drawing depicted the scene of a house on fire she had witnessed after the earthquake. She was at the bus stop with her mother when the first earthquake occurred. The house caught fire due to a gas leak and people inside the house ran out to save themselves. None of the houses close by were affected as a fire brigade had come to extinguish the fire.

Figure 34

Drawing representing the theme of physical objects(P817)



1.4 Impact of aftershocks.Many aftershocks occurred in betweenand after the two major earthquakes. Though the frequency of aftershocks has reduced significantly, occasional tremors are still felt in different parts of Nepal. Children in the interview expressed a range of emotions towards the aftershocks. While emotions such as anger, fear and fun were shared, there were also others who did not feel anything towards the aftershocks. Aftershocks were also seen as a reminder and a precursor for further earthquakes.

> *"Earthquake keeps coming so I feel angry."*(P145, personal communication, November 20, 2019).
>
> *"I am scared...if big will come."*(P716, personal communication, November 28, 2019).

The results of the matrix coding for the new schema show that the impact of trauma was higher for children who were boys, young, had high exposure levels and studying in public schools.

2.An expression space. The therapeutic power of art was experienced by the children as they engaged with different elements of the art-based intervention. The space that was created allowed them to explore their creativity and trauma memories at the same time.

Table 17

Global theme 2: An expression space

Global theme	Organising themes	Basic themes
2.An expression space	2.1 Art activities	2.1.1 Fun 2.1.2 Delightful 2.1.3 Mixed 2.1.4 Group activity 2.1.5 Individual activity 2.1.6 Draw and colour 2.1.7 Encouragement 2.1.8 Enjoyable 2.1.9 Handling fear 2.1.10 Interactions with group 2.1.11 Learning 2.1.12 Novel exposure
	2.2 Art class	2.2.1 Experiencing emotions 2.2.2 Freedom 2.2.3 Friends 2.2.4 Exploring the new 2.2.5 Place to draw 2.2.6 Therapist
	2.3 Art materials	2.3.1 Neutral 2.3.2 Normal 2.3.3 Positive 2.3.4 Fluid medium 2.3.5 Resistive medium 2.3.6 Aesthetic 2.3.7 Easy to use

	2.3.8 Familiarity 2.3.9 Fast 2.3.10 Pleasurable 2.3.11 Love for art 2.3.12 New 2.3.13 Sensory stimulation
2.4 Sharing	2.4.1 Feel bad 2.4.2 Feel difficult 2.4.3 Feel easy 2.4.4 Feel good 2.4.5 Feel mixed 2.4.6 Feel normal
2.5 Traits of therapist	2.5.1 Pleasant 2.5.2 Good 2.5.3 Happy 2.5.4 Character 2.5.5 Engaging lessons 2.5.6 Modelling courage 2.5.7 Non-judgemental 2.5.8 Questioning 2.5.9 Teaching skills 2.5.10 Transference
2.6 Expression of interest	2.6.1 Like 2.6.2 Usual

2.1 Art activities. In the entire intervention, children participated in a range of art activities that dealt with themes of emotions, grounding, trauma and resilience. Positive responses were given by the children as they expressed the art activities to be fun, delightful and enjoyable. One participant however expressed mixed feelings towards the art activities.

"It was a good experience." (P145, personal communication, November 20, 2019).

Some children stated their preferences in terms of the nature of the activity which was either individual or group.

"I liked where the group worked together to make the painting."(P112, personal communication, November 21, 2019).

The art activities provided the children a chance to draw, understand their strengths, tackle their fears, build new friendships, gather information and experience new forms of art.

> *"Because before I knew that there were only two kinds of emotions and after that I came to know that there are different types of emotions."*(P817, personal communication, December 1, 2019).

2.2 Art class.The initial feeling of most of the children was fear which was later transformed into enjoyment as they understood the purpose of being selected for the intervention.

> *"Before I did not know it was art class and then as I started to do drawing I came to know it is art class and then fear was removed."*(P112, personal communication, November 21, 2019).

The environment of the art class was different in comparison to the other classes at school. The freedom to express and make choices was appreciated by the children in the intervention.

> *"There is no competition."* (P464, personal communication, November 29, 2019).

Art class was a new experience that allowed them to connect with friends and create memories to look back in the future.

> *"Got to play with friends, got to do drawing, there will be memories…there will be memories with friends."*(P837, personal communication, November 29, 2019).

Art was the motivation for the children to attend all the sessions even though it involved drawing about the earthquake.

"Best part of art class was drawing."(P202, personal communication, November 20, 2019).

For some children meeting and learning from the therapist was the highlight of being a part of the art class.

"I thought you will teach something new."(P130, personal communication, November 21, 2019).

2.3 Art materials. The range of art materials offered in the art-based intervention was able to provide a positive and pleasurable experience to the children. However, for some of the children, the excitement of the art materials was only at the beginning as they started to become habituated and regarded them as a normal experience.

"Ma'am before I had not painted much and I had done it only once and after coming here, I started painting regularly. Sometimes only I used pencil colour and after painting it was fun."(P658, personal communication, November 24, 2019).

The choice of the art materials depended on factors like outcome of the materials on paper, ease of usage, familiarity, time required to complete the art, novelty of the material and the sensory pleasure derived from the use of the product. For one participant it was the love for art that motivated him to use the different art materials in the session.

"Like that when the skin of a person peels off. It looks dry dry colour."(P352, personal communication, November 27, 2019).

"Because when you rub it was nice, hands also felt cool and littlelittle hands also hurt."(P145, personal communication, November 20, 2019).

The type of art material also had a role to play as the preference of the children were divided into fluid mediums like watercolours, tempera paints or resistive mediums like pencil colours, markers etc.

2.4 Sharing.Sharing was an integral part of the art-based intervention. Using art to visualise their inner world and combining it with words allowed children to express their trauma. This exchange of stories in the intervention was perceived by children to be easy and pleasant. In the case of some children, despite the non-judgemental atmosphere, sharing was difficultand gave them a mixed feeling about the task at hand. For those who were used to the idea of sharing, this culture of the intervention did not feel any different from what they were used to outside the art class.

> *"It was fun also and good also."* (P402, personal communication, November 28, 2019).

> *"Sometimes I feel scared, sometimes it feels good that is why."*(P145, personal communication, November 20, 2019).

2.5 Traits of therapist.One of the essential component for effective intervention is the establishment of good rapport between the facilitator and the participants. In the interviews, children shared how they were able to connect with the therapist and enjoy working together in various activities. This trust allowed the therapist to ask children about their trauma which they did not share with their friends.

> *"Later on I got to know you and once I got to know you, I started talking and fear went away."*(P112, personal communication, November 21, 2019).

Children felt that the therapist had a different approach to class management where they felt appreciated and heard. For one participant, the teaching style was reminiscent of her aunt which motivated her to attend the classes.

> *"Ma'am you used to not shout, not beat others and speak nicely and bring what we needed for colouring."*(P658, personal communication, November 24, 2019).

The lessons that were taught were meaningful and explained at a level they could understand easily.

> *"You had taught how earthquakes come and it felt good listening to that also."*(P202, personal communication, November 20, 2019).

The therapist was considered a good role model for learning how to deal with fears and letting go of judgementstowards themselves and others.

> *"However one knows like that, seeing others there will not be good or bad that is why."*(P464, personal communication, November 29, 2019).

2.6 Expression of interest. All of the children in the interview shared their liking towards art as a way to spend time with themselves.

> *"Every time at night I make a drawing once and keep that side."*(P817, personal communication, December 1, 2019).

The results of the matrix coding for the theme of an expression space showed that the girls expressed more interest towards the intervention while the boys were more comfortable sharing in the sessions. Younger children were more comfortable sharing and working with the therapist than the older children.The sessions provided a space for children with high level of exposure to engage with the elements of art and express their emotions. Finally,

children from the public schools expressed more interest towards the intervention than those belonging to private schools.

3.Drawing the trauma. Every intervention has a working mechanism that allows the facilitators to achieve the targeted goals. The identification of these factors is important to understand the causes behind the results and aid replication by outlining the areas that need attention during implementation of the intervention.

Table 18

Global theme 3: Drawing the trauma

Global theme	Organising themes	Basic themes
3.Drawing the trauma	3.1 Mechanisms of change	3.1.1 Healing 3.1.2 Awareness 3.1.3 Maintenance 3.1.4 Understanding
	3.2 Moment of change	3.2.1 Expressed through art 3.2.2 Emotional regulation 3.2.3 Interoception 3.2.4 Lived experience 3.2.5 Psychoeducation 3.2.6 Sharing stories
	3.3 Contributors for sharing	3.3.1 Art as a facilitator 3.3.2 Common experience 3.3.3 Group culture 3.3.4 Opportunity to express and be heard 3.3.5 Peer learning 3.3.6 Predictability 3.3.7 Sense of relief
	3.4 Difficulties in art class	3.4.1 Art activities 3.4.2 None 3.4.3 Sharing 3.4.4 Structure
	3.5 Working in group	3.5.1 Better outcomes

	3.5.2 Collective engagement 3.5.3 Conflict management 3.5.4 Division of work 3.5.5 Friendly interactions 3.5.6 Leadership 3.5.7 Social learning
3.6 Working alone	3.6.1 Boring 3.6.2 Difficult 3.6.3 Freedom 3.6.4 Good 3.6.5 Loneliness 3.6.6 Normal
3.7 Obstacles in sharing	3.7.1 Moral dilemma 3.7.2 Personality of the child 3.7.3 Task-oriented 3.7.4 Trauma memories
3.8 Uses of art	3.8.1 Artistic endeavours 3.8.2 Exposure to art forms 3.8.3 Managing emotions 3.8.4 Psychoeducation 3.8.5 Skill development 3.8.6 Utilising time

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3.1 Mechanisms of change. Art is healing as it allows individuals to externalise their feelings in a concrete form. Children were able to find an outlet for their fears without being overwhelmed and experience relief by visualising their worries onto the paper.

> *"When you draw heart also feel lighter and drawing about earthquake and as per the drawing talking about the earthquake is good. "*(P202, personal communication, November 20, 2019).

Trauma causes an imbalance in emotions. In the various sessions, children developed an understanding of emotions which helped them to become aware of the triggers and share their feelings easily with others. Moreover, children learnt about the different techniques to regulate themselves which gave them control over the emotions whenever they talked about the trauma or felt provoked by the external forces.

"And not to throw away anger at once, throw it away in small amounts this has helped."(P352, personal communication, November 27, 2019).

"Even if you are reminded of the earthquake by doing cloud small and big and listening to songs and by making pictures and doing that." (P112, personal communication, November 21, 2019).

Psychoeducation allows individuals to gather facts about the problem. For the children, fear of the earthquake was reinforced by the constant reminders from the environment but no effort was taken to explain the reason behind the disaster. In the intervention, children understood that earthquake is a real threat but it can be handled with proper precautions.

"At first I was scared to make drawings about the earthquake and after that you said earthquake comes when it joins like this and from then I stopped being scared."(P112, personal communication, November 21, 2019).

3.2 Moment of change.Children were able to face their fears with the help of art. They identified the state of calmness after expressing their trauma through art and found a resolution to their problems.

"I had made one drawing where because of earthquake standing outside the house, it had helped then. When earthquake comes like that, even at home you can save yourself from the earthquake. " (P202, personal communication, November 20, 2019).

P145 drew his experience of witnessing death for the first time during the second earthquake. When the tremors started, he ran to the ground holding his aunt's hand. On the way, he saw one person being buried by a tree and another by a house. The two houses next to the dead bodies in the picture were damaged by the earthquake. He was reminded of this

scene in the following days after the earthquake but he did not share this fear with his family members because he did not want to trouble them. He felt he was able to transfer this memory from his heart onto the paper after the drawing session.

Figure 35

Drawing representing the theme of expressed through art(P145)

Children noticed that they were able to manage their emotions after being a part of the intervention. The techniques were applicable to everyday scenarios which allowed them to practice the skills and gain further mastery.

"That you only had taught if someone makes you angry, from the balloon activity I had learnt…we should slowly slowly share our stories to others."(P402, personal communication, November 28, 2019).

Interoception is one of the ways in which individuals understand the sensations in their body. When one is aware of the body signals, it becomes easier to respond to them appropriately. In the case of P817, after the exposure to the earthquake, her heartbeat used to rise rapidly. However, after the intervention she noticed the change in the heart beat as she learnt how to deal with the earthquake.

"Before when I was scared my heart would beat fast and now it does not happen more...now it happens slowly only."(P817, personal communication, December 1, 2019).

Aftershocks are a constant reminder of the earthquake. When children were able to handle the aftershocks, they regarded it as a shift from fear to courage.

"That if it shakes suddenly now I am not afraid."(P702, personal communication, November 27, 2019).

Children gained a sense of control after being educated about the earthquake. This knowledge helped them to develop their safety plan and understand the reality behind the fears in their mind.

"You said earthquake happen like this and fear was removed."(P112, personal communication, November 21, 2019).

When children gave words to the fears it provided a sense of relief and gave them the opportunity to look at the incident from all perspectives. The art class was a place to share

their stories without being judged which helped them to talk about anything that was troubling them for all these years.

> *"Ma'am I got to share here whatever was on my heart and heart was open and fear also came out and now it will not be like that .I felt it is just my superstition and after that nothing happened."*(P658, personal communication, November 24, 2019).

3.3 Contributors for sharing. Individuals do not wish to talk about trauma as it is a painful subject. Children shared their trauma stories during the intervention which was facilitated by many factors. One of the factors that encouraged children to share was the act of drawing. Art is a non-threatening medium which allowed children to talk about their trauma within the boundaries of tolerance.

> *"By doing it in the drawing…so when doing that and felt like to share the fears."*(P202, personal communication, November 20, 2019).

The art-based intervention was conducted in groups. The presence of other children who had undergone a similar experience made them feel that they were not alone in their journey of healing and provided a sense of relief which encouraged them to share further. A bond had developed among the group members which allowed them to share their stories and feel validated from the group. The experiences of the group members taught them ways to handle the disaster making them confident and capable for future scenarios.

> *"Because felt like in their lives also the same things had happened like mine."*(P145, personal communication, November 20, 2019).

> *"I could tell things I had hidden now. I do not tell I am afraid at home."* (P202, personal communication, November 20, 2019).

"That everyone had said to run in safe place that is helpful, that is helpful for everyone. "(P464, personal communication, November 29, 2019).

The structure of the art-based intervention was kept uniform for all the sessions. This was helpful to the children as they could predict the format and prepare themselves for the task at hand. This predictability increases the feelings of safety in trauma survivors as it eliminates the possibility of sudden triggers that keeps them in the alert phase.

"Ma'am after that we started coming regularly and we started talking to all the friends and we started laughing and then nothing happened to me."(P658, personal communication, November 24, 2019).

3.4 Difficulties in art class.Children addressed areas of the intervention that made it harder for them to involve themselves completely. There were art activities that were difficult to comprehend, learning how to overcome shyness and fear within the group and drawing without copying which was a new experience for them. Some of the children did not experience these hurdles in the intervention and enjoyed the entire process.

"That good and bad about the earthquake drawing. When I drew about the good I felt good. When I made the bad I was scared." (P817, personal communication, December 1, 2019).

"People when they are asked to draw in class, they make by seeing. But here we made without seeing that is why."(P112, personal communication, November 21, 2019).

3.5 Working in group.The advantages of group work was shared by the children that supported their work during the intervention. Children commented on the friendly interactions that happened in the group and the collective effort put in by the group members to complete a task.

"Everyone worked together. Those who does not speak also started to come to talk about how to do this, is this okay or not. And helping each other."(P352, personal communication, November 27, 2019).

Being in a group allowed the children to observe leadership qualities among the peers as well as learn to empathise with others in the group.

"Because we get ideas from friends and we get to know how a friend is."(P837, personal communication, November 29, 2019).

Children believed the end result was better when working in group than when doing the task alone.

"Because I felt lazy to draw when working alone but in group it is good, does not feel lazy."(P145, personal communication, November 20, 2019).

Group activities offered a chance to divide the work and learn how to resolve conflicts among themselves.

"Ma'am it finishes faster and that when working, if we are really tired, we can sit forsometime and make our friends do the work and it finishes faster."(P658, personal communication, November 24, 2019).

3.6 Working alone. In the intervention, children participated in individual activities which they considered to be fun and gave them a chance to work freely without any group interference.

"When working alone you can draw what you want."(P402, personal communication, November 28, 2019).

However, for those children who had enjoyed working as a team, working by themselves was boring, difficult and made them miss the support from the other group members.

"It feels so boring working alone."(P202, personal communication, November 20, 2019).

Along with the mixed responses, few children did not find any difference in their experience when engaging in individual and group activities.

3.7 Obstacles in sharing.After every session, children explained their drawing to the group. Children who were not used to speaking in a crowd felt shy and scared to talk about their art in the group.

"I was shy to tell."(P716, personal communication, November 28, 2019).

The conversations about trauma were difficult to initiate because of fear and some children were worried that they might upset the listeners with their troubles.

"That if they will find it bad."(P702, personal communication, November 27, 2019).

For one participant, sharing was a challenge when the task was difficult to comprehend and connect with the art.

3.8 Uses of art.The relevance of art was understood by the children which helped to sustain their interest in the medium. The use of art for aesthetic purposes, skill development and personal interest was shared by many children in the interview.

"For making drawing and then keeping it in a big frame and like that."(P145, personal communication, November 20, 2019).

In the intervention, children also got a chance to experience the other dimensions of art. This exposure taught children how art can be a way to manage emotions, spend time in a productive manner and become an effective means for learning. This understanding of new avenues for using art encouraged children to explore art further.

> *"When I am afraid, when I get angry and sometimes when I am bored I will do drawing."*(P202, personal communication, November 20, 2019).

> *"Doremon no, I used to watch something, Doremon or Jesu and in that when earthquake comes , even when small earthquake came he used to be scared and his father had said when earthquake comes you should stay calm and from then onwards even if small earthquakes come I am not scared."*(P352, personal communication, November 27, 2019).

The matrix coding results for this theme identified that the art-based intervention was more suitable for children of younger age, who had high levels of exposure and belonged to a public school.

4. Reappraisal of trauma narrative. The focus of the intervention was to help children find an expression to their trauma memories and teach skills to handle future encounters with trauma. The changes noticed by the children ranged from development of a personal coherent narrative to utilisation of the skills for empowerment of others in the community.

Table 19

Global theme 4: Reappraisal of trauma narrative

Global theme	Organising themes	Basic themes
4. Reappraisal of trauma narrative	4.1 Applications to real life	4.1.1 Dealing with trauma memories 4.1.2 Handling emotional situations 4.1.3 Possibility of future use 4.1.4 Relieving boredom 4.1.5 Teaching the community
	4.2 Change in trauma narrative	4.2.1 Acquisition of skills 4.2.2 Experience as learning 4.2.3 Fear to fearless 4.2.4 Natural process 4.2.5 Realistic judgements
	4.3 Change in self	4.3 1 Academic improvement 4.3 2 Artistic confidence 4.3 3 Self-awareness 4.3 4 Interpersonal development 4.3.5 Positive reinforcement 4.3.6 Resolution of fear 4.3.7 Self-regulation
	4.4 Containment of trauma experiences	4.4.1 Better quality of life 4.4.2 Co-regulation 4.4.3 End to nightmares 4.4.4 Overcoming fear 4.4.5 Removal of reminders 4.4.6 Restoration of self 4.4.7 Use of knowledge and skills
	4.5 Lessons from the intervention	4.5.1 Artistic development 4.5.2 Coping with disaster 4.5.3 Handling emotions 4.5.4 Improving peer relationship 4.5.5 Self-development 4.5.6 Skill acquisition

4.1 Applications to real life.Children shared the different ways in which the intervention had impacted their everyday life. As the aftershocks continued even after three years of the earthquake, the children learnt to handle these trauma reminders by using the techniques of the intervention.

> *"Mommy was watching TV and exactly I was about to sleep and exactly earthquake came. Later we stood for sometime in the room. Later Mommy was talking to the aunts who were staying in rent and she kept talking and later I took a paper and drew a cloud and sat."*(P817, personal communication, December 1, 2019).

Emotions are a constant part of our lives. With the help of the intervention, children were able to tackle emotional fluctuations in an effective manner. The interactions at home and school were not overwhelming for children after they learnt how to handle their emotions.

> *"And then have started to control my anger now. And I have started to those things also....that cloud small and big when I am angry I do that and brain becomes calm."*(P112, personal communication, November 21, 2019).

For some children, being a part of the intervention gave them an extra skill set to use in the future. They shared that though currently challenging situations have not occurred, when there is a need, the skills will be applied to deal with them.

> *"Not that it has not come in life , before it had come but after learning this it has not come."*(P402, personal communication, November 28, 2019).

Children expressed that the techniques of art class had become their chosen method to spend time. When they felt bored rather than complain about it, they started to draw or use the relaxation methods to calm their mind.

"At home... in my room both my sisters were not there and I was alone. I was bored being alone, I took long breaths like you said and then I was feeling lazy and then I did that and it was ok." (P145, personal communication, November 20, 2019).

The knowledge was shared by the children with the family members and they felt capable enough to teach others in the community who might be facing a similar problem like them.

"I said this to my sister, sister also used to be scared and I had said you should not be afraid of earthquake, you should not keep in mind." (P130, personal communication, November 21, 2019).

4.2 Change in trauma narrative.The group sessions along with the psychoeducation introduced children to the different ways to deal with the earthquake. This acquisition of skills allowed children to regain their sense of control and feel prepared to deal with any threats to their life.

"Now no matter how many times it comes will survive."(P464, personal communication, November 29, 2019).

Trauma changes a person's outlook on different aspects of life. The experience of the earthquake was perceived as a bad moment by the children. Though this observation was correct, after being a part of the intervention, children learnt that there were also important lessons that they could gain from this event. The perspective of the children could now incorporate both the positive and negative side of the earthquake.

"Now I know what an earthquake is, that experience. And if an earthquake comes I know it will be the same but even if the same happens, saving myself and saving my friends."(P202, personal communication, November 20, 2019).

Fear was the dominant emotion in all the narratives shared by the children. The earthquake instilled a threat to their life which resulted in children restricting their activities and being unable to enjoy their childhood. Children expressed how the activities of the intervention allowed them to move beyond the fear and internalise their preparedness and courage to deal with future disasters.

> *"Even if it comes, nothing will happen. Even if earthquake comes, nothing will happen so I sit being happy. Before I used to be scared thinking what will happen if earthquake comes, what will happen now, what will happen to everyone and now nothing like that is there."* (P352, personal communication, November 27, 2019).

This shift in the narrative is depicted in the drawing by P665. The picture tries to convey that the earthquake is over so there is no fear and now he can freely come to school and meet his friends. This freedom is a difference after the earthquake. This is a reassurance that things have returned to normal and this change in his attitude by focusing on the reality that earthquake is an occurrence of the past is shown in the picture.

Figure 36

Drawing representing the theme of change in trauma narrative(P665)

CHANGE AFTER
EARTHQUAKE
Everything is okay. Now, No scare of earthquake
Yes, You are right. We can go to school
I'm feeling happy.

As the children shared their misconceptions about the earthquake, factual information was provided to the children. This understanding altered the meaning of earthquake from an unknown object to a natural phenomena that occurs in the earth's surface. Furthermore, this helped children make realistic judgements about the nature of earthquake and prevent themselves from being in a survival mode for longer periods of time.

> *"Because it comes and goes that is why."*(P145, personal communication, November 20, 2019).

> *"Every time small earthquake comes, a big one does not come because of that."*(P702, personal communication, November 27, 2019).

4.3 Change in self.A resolution of the trauma in children brought changes in the various dimensions of their life. The first area of change was noticed by the children in their

studies. Children shared that they were putting more effort to study and bring changes in their study patterns after the intervention. The difference in their academics was noticed by the parents and teachers which further encouraged them to work harder.

> *"Ma'am in studies, yes. Ma'am says handwriting has become good now. And now studies is also improving and I have got more marks in the test."*(P658, personal communication, November 24, 2019).

The participation in the intervention rekindled the interest of the children in art. They were able to let go of the need to create a perfect picture and enjoy the process of creation which helped them to appreciate art furthermore.

> *"I got confidence that whether it is good or bad, I can make it."*(P352, personal communication, November 27, 2019).

An understanding of the emotions allowed children to practice self-regulation in triggering situations. Children reported being able to handle their emotions which further helped them to improve their relationships with their siblings and friends. The interpersonal relationships which were affected earlier by the frequent outburst of emotions was controlled resulting in the development of an empathetic connection with others.

> *"Before I had the habit of being angry. Even if brother does something small, I used to be angry and sleep without eating rice, I used to do like that and now I can control anger."*(P112, personal communication, November 21, 2019).

> *"Before I used to not teach. I used to teach only one or two. Now whoever asks I teach."* (P837, personal communication, November 29, 2019).

Apart from the main themes that focused on trauma, other activities were designed to promote resilience in children. One such activity helped children to develop self-awareness

and gain positive reinforcement by highlighting the good qualities that they had overlooked in themselves. Children were able to understand themselves better and identify the weak areas that need more attention in the coming days.

> *"If you spend your life being angry then you will be angry all the time. If you control your anger little little also anger will be removed."*(P402, personal communication, November 28, 2019).

> *"Be like that they said. Before you used to not do anything and after receiving that note, they said good and at that time also I felt good."*(P658, personal communication, November 24, 2019).

Along with the resolution of the fear towards the earthquake, children shared that they were able to overcome their fears of staying alone, sitting in darkness and being frightened by others after the intervention.

> *"Before when going to toilet also I used to scared, in my heart fear used to be constantly there and now nothing like that happens and I go happy and will switch off the light and if there is darkness will come quietly without being scared."*(P352, personal communication, November 27, 2019).

4.4 Containment of trauma experiences. Before fear was managed, children reported that they were in a constant state of worry and dread. The major achievement for the children was being successful in overcoming their fear after being a part of the art sessions. They were able to move from a position of helplessness to being confident to face the earthquake and prevent this fear from causing further disturbance in their lives. Those reminders of the death and destruction stopped affecting them mentally and they were able to relax themselves. They started enjoying time with friends, felt at ease when doing their daily chores and experienced

an overall improvement in their health.They experienced a significant improvement in the quality of life after the intervention.

> *"At that time when I used to go to the class upstairs I used to be scared. Now it is at the top but I am not scared."* (P202, personal communication, November 20, 2019).

> *"Staying just like that also it used to come…now it does not come."*(P837, personal communication, November 29, 2019).

> *"That I have been able to sleep peacefully at night and I am not afraid to go to toilet."*(P702, personal communication, November 27, 2019).

P716 illustrated his journey of overcoming fear with a drawing that bids goodbye to his fear of the school building collapsing due to the earthquake. This fear developed due to his experience of being inside the class when aftershocks had occurred after the major earthquakes. This incident occurred when he was in Class 1. The benches inside the class had fallen down and he was trying to run outside when his teacher caught him and asked him to go slowly. None of his friends or teachers were injured and there were no damages to the school due to the earthquake. After this incident, he feared that the school will be damaged if another earthquake comes and this thought comes to his mind when he is at school doing nothing or when resting in the class.

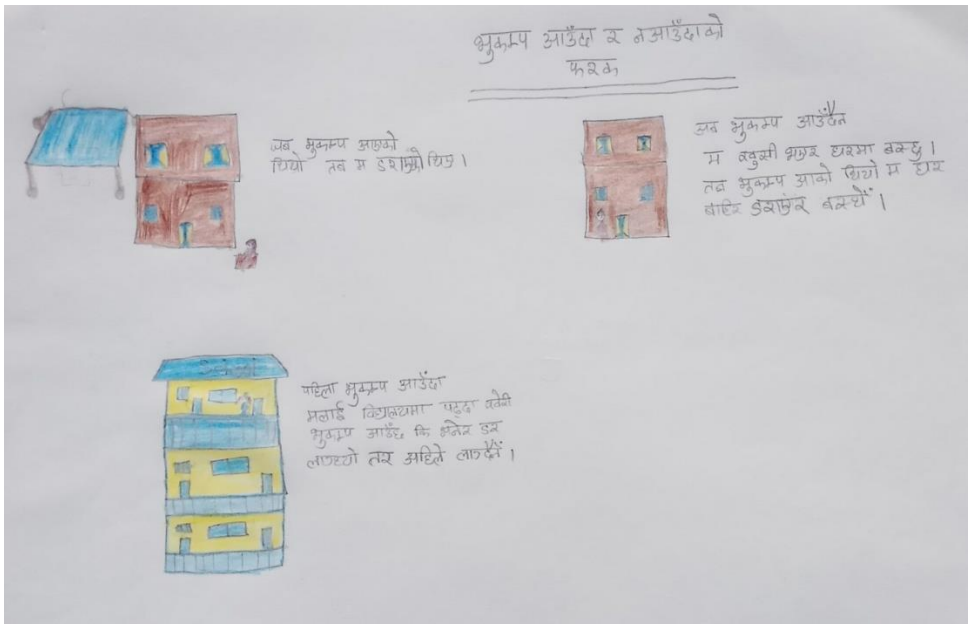
Figure 37

Drawing representing the theme of overcoming fear(P716)

For P202, closed spaces reminded her of the earthquake. When she was inside the house or at school, she used to constantly think whether an earthquake will occur. In the beginning, she used to stay outside because of this fear and later on though she was able to come inside the house this fear stayed with her. After being a part of the intervention, she noticed the changes in her behaviour and represented them in different scenarios of her life.She believed that the reason these fears have reduced was because she realised that earthquake is not occurring at present, understanding the cause behind the earthquakes and talking about the different questions related to the earthquake in the art class.

Figure 38

Drawing representing the theme of removal of reminders(P202)



Though drawing and discussing about trauma was hard for some children, the group acted as a vessel to hold their trauma memories. Each member acted as a co-regulator helping children learn how to calm down and give an outlet to the stories that they wanted to share in the group. This sharing contributed to the children regaining their sense of self as they felt they had got rid of the memories that had been troubling them for all these years.

> *"Sisters are not scared , why should I only be scared."*(P352, personal communication, November 27, 2019).

> *"I feel like I am free from the earthquake."*(P145, personal communication, November 20, 2019).

Children reported a decline in the frequency of nightmares after being a part of the intervention. Earlier the events they had witnessed during the earthquake used to repeatedly appear in their dreams disrupting their sleep. After sharing the trauma experience in the sessions, they were able to face these nightmares and these images from the earthquake did not affect them anymore.

> *"Sometimes it comes these bad dreams. But people dying does not come. Getting scolded at, getting beating like that I see."*(P352, personal communication, November 27, 2019).

Another factor that contributed in helping children contain their trauma experiences was the knowledge gained from the participation. Children utilised the skills in real life scenarios which assured them that they could take care of themselves in the event of future disasters.

> *"Now after you said I know the places to hide such as under the bed, under the table like that so now I am not scared."* (P202, personal communication, November 20, 2019).

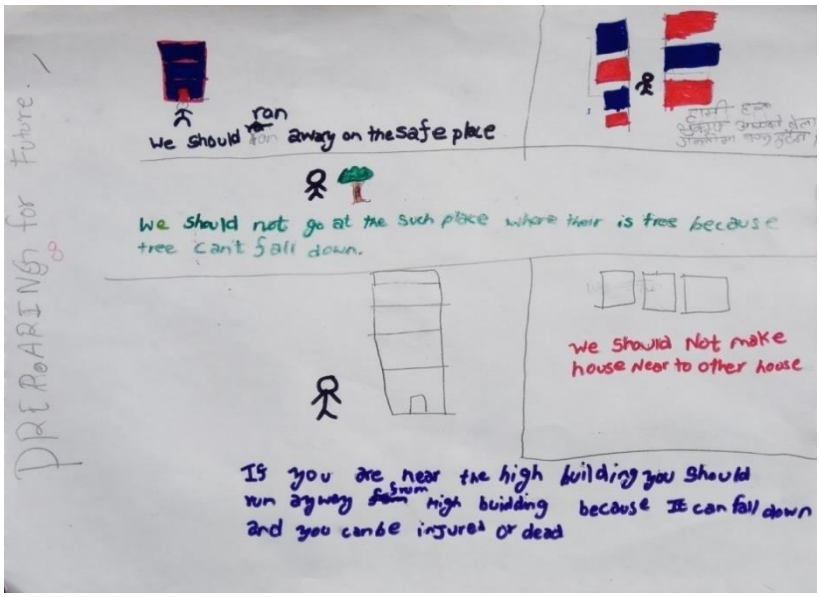
4.5 Lessons from the intervention.The goals set for the intervention was achieved as children listed the various lessons that they had acquired from the sessions. Children spoke about how the intervention taught them to draw, deal with disasters, cope with emotional situations, develop lasting relationships, improve their habits and created a personal toolkit to use in difficult times. These reports prove that the intervention was able to create an impact on the children as they were able to internalise the goals and experience the changes in the journey of healing themselves from trauma.

"If a big earthquake comes no matter what you do, you have to go outside the house…But when small small earthquakes comes, instead of staying scared, there will be places to hide that is why."(P202, personal communication, November 20, 2019).

P464 outlined the safety measures that he had learnt from the art-based intervention.The lessons included running to a safe place, not to walk in small lanes as the buildings might fall, not to stay under trees or tall buildings and not to build houses next to each other as if one falls then the others also get damaged during the earthquake. He was not able to protect himself from the earthquake in the past but with the help of this safety plan he believed that he would be able to take care of himself in the future.

Figure 39

Drawing representing the theme of coping with disaster(P464)


PREPARING for future.
We should ran away on the safe place
We should not go at the such place where their is tree because tree can't fall down.
We should Not make house Near to other house
If you are near the high building you should run anyway from high building because it can fall down and you can be injured or dead

The results of the matrix coding for this theme revealed that the effect of the intervention varied based on the gender. While the boys learnt how to handle their trauma

memories, girls experienced an overall development of their personality. In terms of age, exposure level and type of school, the effectiveness of the art-based intervention was seen more in younger children, those with high exposure to the earthquake and in children from public schools.

5.Protective factors. The impact of an event on a person is influenced by many factors such as coping abilities , social circle, personality etc. In the case of children, while some protective factors were in place prior to the earthquake, the intervention helped to develop new coping skills that could provide further support in times of need.

Table 20

Global theme 5: Protective factors

Global theme	Organising themes	Basic themes
5.Protective factors	5.1 New emotion-focused strategies	5.1.1 Art 5.1.2 Breathing 5.1.3 Dance 5.1.4 Memories 5.1.5 Music 5.1.6 Sleep 5.1.7 Television 5.1.8 Video games 5.1.9 Walk 5.1.10 Writing
	5.2 New problem-focused strategies	5.2.1 Control 5.2.2 Face the situation 5.2.3 Safety 5.2.4 Sharing
	5.3 Old emotion-focused strategies	5.3.1 Art 5.3.2 Children 5.3.3 Crying 5.3.4 Dance 5.3.5 Food 5.3.6 Forget 5.3.7 Ignore 5.3.8 Inactivity 5.3.9 Mobile phone 5.3.10 Parents 5.3.11 Silence 5.3.12 Sleep 5.3.13 Video games
	5.4 Old problem-focused strategies	5.4.1 Ask for help 5.4.2 Beating 5.4.3 Changing location 5.4.4 Finding solutions 5.4.5 Play 5.4.6 Safety 5.4.7 Silent treatment
	5.5 Social support	5.5.1 Family 5.5.2 Friends 5.5.3 School

5.1 New emotion-focused strategies.After the art-based intervention, children reported using art, relaxation exercises, dance, happy memories, music, watching television, going for a walk and writing as a way to handle situations that overwhelm them.

> *"When I was scared that how brothers made us laugh and in class the moments when Sir had made us have fun, it was so much fun , I played this much at home yesterday and it was fun I used to remember and then fear."*(P352, personal communication, November 27, 2019).

5.2 New problem-focused strategies. Children were able to find solutions to their problems by employing strategies of self-control, facing the issue, learning to be safe and sharing their worries to receive timely help from those around them.

> *"Wherever I was standing, I will stand there."*(P702, personal communication, November 27, 2019).

5.3 Old emotion-focused strategies. Before the intervention, the methods of coping with emotional upheavals was through being in the company of younger children and parents, crying, forgetting and ignoring the problem, playing video games, sleeping and not talking to anyone.

> *"I used to be scared. Hide under the blanket and sleep."*(P837, personal communication, November 29, 2019).

5.4 Old problem-focused strategies.Earlier children resolved a crisis by acting out violently, removing themselves from the situation, trying to find a solution, playing and not talking to the concerned person.

> *"Ma'am before as soon as they say it, I used to hit on their face."* (P658, personal communication, November 24, 2019).

5.5 Social support. In middle childhood, the three main agencies in a child's life are family, friends and school. All the children in the interview expressed receiving support from either of the three in times of difficulty. From issues related to the earthquake to academic challenges, the agencies had played a role in helping children overcome these obstacles and provide a sense of belongingness to them.

> *"Sometimes I do not know homework and at that time also she helps. And sometimes when I do not bring lunch, she gives me lunch. And when I do not have pen, she gives me pen like that."*(P202, personal communication, November 20, 2019).

A scene from the earthquake was depicted by P547 which portrayed the role of the family in disasters. He narrated how he was sitting in the bed watching television with his mother and sister. His grandmother was in the kitchen making tea while his grandfather and father were out for work. The earthquake came and his mother hugged him and his sister and took them outside. He remembered feeling scared at that time as he held on to his mother. His grandmother also came out of the house with them and he remembered his mom opening the gate and taking them outside the house.

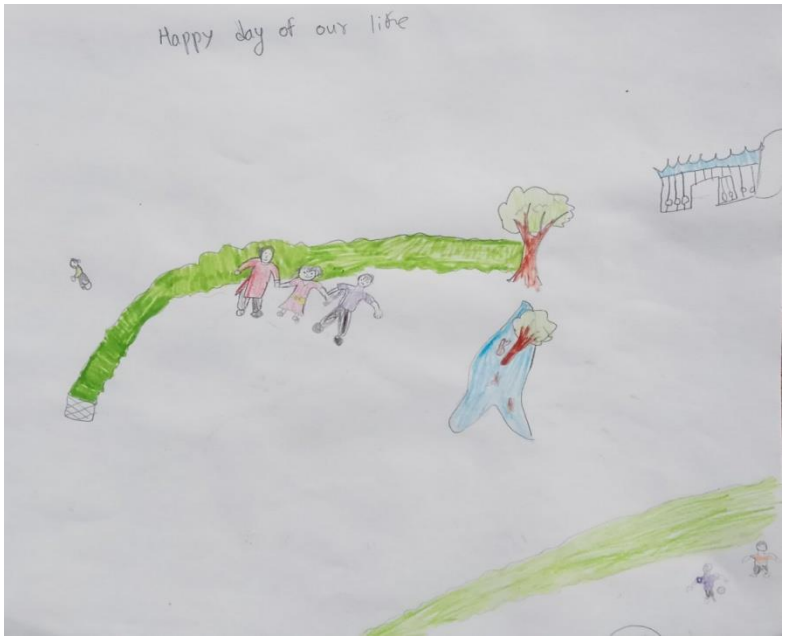
Figure 40

Drawing representing the theme of family(P547)

For another child, P426, spending time with his family was a source of happiness. He drew the memory of a recent trip with his mom and sister to a park. In the picture, he and his mom are holding the sister's hand. They prayed in the temple at the park and then watched the fishes in the pond. It was a memorable day as he got to visit the park with his family.

Figure 41

Drawing representing the theme of family(P426)



The results of the matrix coding showed that both the coping styles were adopted by the boys and girls after the intervention and social support was more for girls in the sample. Older children utilised the coping strategies more than the younger children. Children with high exposure and belonging to public schools used the coping strategies and social support to deal with their trauma.

6.Future benefits. Healing is not a linear process. Due to this reason, it becomes important that any treatment provided to trauma clients should be applicable for the future occurrences. In addition to this, treatments that focus on empowerment of the clients promote

smooth transition back to the society and encourages them to help others who may be in a similar situation.

Table 21

Global theme 6: Future benefits

Global theme	Organising themes	Basic themes
6.Future benefits	6.1 Impact on other kids	6.1.1 Improvement in life 6.1.2 Opportunity to learn 6.1.3 Positive influence 6.1.4 Removal of fear 6.1.5 Techniques to manage emotions
	6.2 Preparedness for future disasters	6.2.1 Absence of fear 6.2.2 Experiential learning 6.2.3 Increase in confidence 6.2.4 Safety awareness 6.2.5 Tools for self-care
	6.3 Suggestions for improvement	6.3.1 Don't know 6.3.2 Improvement in content 6.3.3 No change

6.1 Impact on other kids. Based on their experiences in the art-based intervention, children believed that the sessions would be helpful to their peers in bringing about an improvement in their lives. As the sessions dealt with a number of topics despite focusing on trauma work, children shared that it would be a great opportunity for other children to learn which would help them change themselves for the better.

> *"Ma'am they will also be happy like us and they also leave bad habits."*(P658, personal communication, November 24, 2019).

"Those who are always sad for them also is there. For those kids who are affected by earthquake also is there. And for those who do not share also is there like that."(P464, personal communication, November 29, 2019).

Children understood the importance of emotions in the sessions. When the techniques helped them deal with the fear of the earthquake which was their main concern, it motivated them to apply the skills to handling other emotions in their life. This benefit from the intervention was highlighted by the children as they explained how the other children would achieve the same milestones of overcoming fear and acquiring skills of emotional management.

"They will also know maybe when earthquake come you should not be afraid."(P702, personal communication, November 27, 2019).

"When one is angry, by using cloud the anger will go…and they will feel calm at heart. I think like that."(P202, personal communication, November 20, 2019).

Children perceived the therapist as a role model who provided positive reinforcement to them. They expressed that this type of encouragement would be appreciated by the children who would be a part of the intervention in the future.

"Sometimes you give courage, you say study better because of that they will also get some courage and even if others do not say it does not matter Ma'am has said."(P352, personal communication, November 27, 2019).

6.2 Preparedness for future disasters.The level of disaster preparedness in children had increased after the participation in the art-based intervention. The sessions encouraged them to identify the lessons from their experience and deal with the fear that was affecting their lifestyle.

"Before I was scared of earthquake which is why I could not deal with it but now I am not scared of earthquake so I can deal with it."(P145, personal communication, November 20, 2019).

"Experience has increased. After earthquake has come, this is what an earthquake is, you need to stay like this now I know."(P464, personal communication, November 29, 2019).

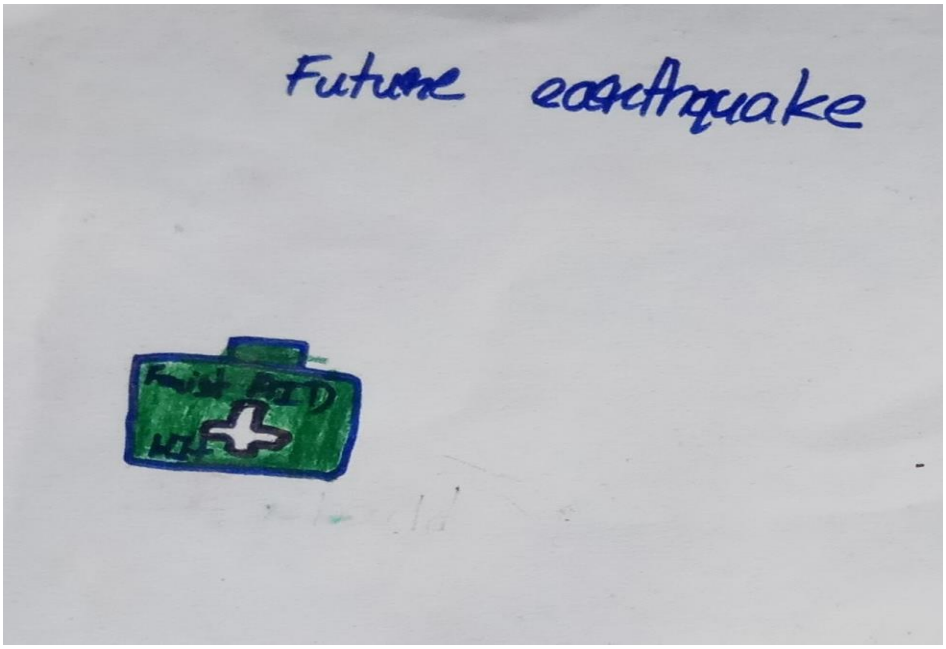
Children shared their potential safety plans as well as learnt new ways of staying safe during an earthquake. This boosted their confidence to handle future earthquakes as they were assured that they could protect themselves and others from potential threats to life.

"If earthquake comes, I will be calm and sit quietly. If you run in panic then you get injured and people will fall that is why. Otherwise will hide under the bench immediately."(P352, personal communication, November 27, 2019).

P553 depicted his preparedness for disasters by drawing a first aid kit. He shared that he was taught in school to keep a first aid box with the necessary medicines. He applied this learning for earthquakes as he believed that if anyone is injured during this time then he can easily treat them.

Figure 42

Drawing representing the theme of safety awareness(P553)



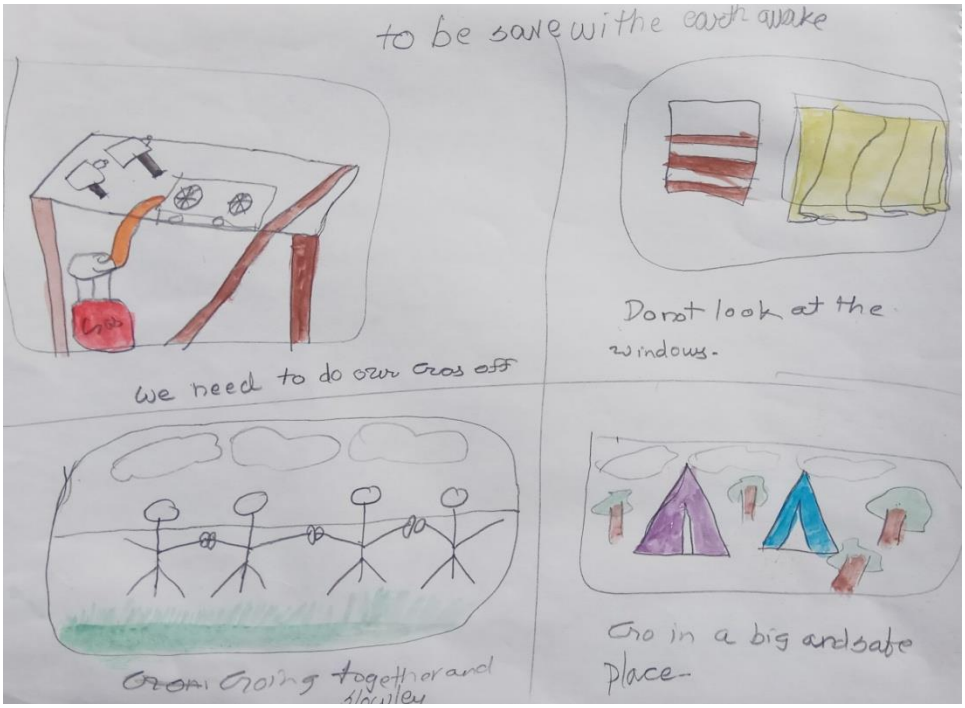
P702 drew a detailed road map to be followed in the event of disasters. In the first picture, he drew the lessons he had learnt from a cartoon called Ninja Hattori. In one episode, the main character, Ninja Hattori, sneezes and the entire family thinks that an earthquake has come. The dad in the cartoon then explains to the family what one should do during an earthquake and the entire family practices the skills in the episode. He shared that after watching this, he learnt that one should switch off the gas supply as there is a chance of gas explosion ,lock the things that might fall off, open windows, switch off the lights, take important items, lock the doors and run. According to him, this is even more important where houses are attached to each other like his own house. This is a cultural influence as the houses in the location he stays are built in this way.

The second picture depicts the learning from his experience during the first earthquake. He was with his sister in the room while his mother was upstairs. When the earthquake came, they looked out the window to see what had happened and a bald man told them not to look out the windows. He shared that the man told him to close the windows and come out with someone. In the third picture, he drew individuals holding hands together. He

did not practice this lesson himself during the earthquake but in the future he plans to follow it to avoid being separated from his family. The final picture shows the ground they stayed in after the first earthquake. It was a big ground where there were less houses and his dad told him that one must stay in empty grounds to be safe after the earthquake.

Figure 43

Drawing representing the theme of safety awareness(P702)

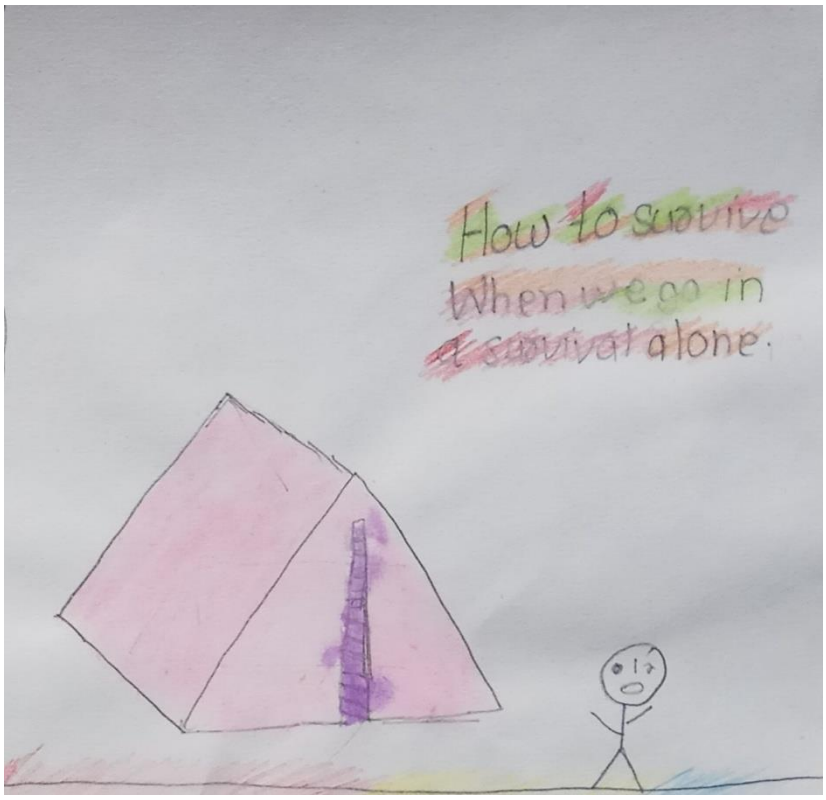


Finally children felt prepared because of the new self-care tools they had acquired after the disaster. This toolkit had helped them to deal with their trauma experience due to which they felt capable of taking care of themselves in the future.P658 shared his experience of living in tents after the first earthquake. He was not very happy staying in the tent as it was raining and he was not able to sleep. They had a gas stove outside the tent to cook food.

Though it was difficult for him to live in tents, he enjoyed learning how to build a tent and cook noodles. This experience taught him skills of building and cooking which he believes will help him survive alone if there is a need in the coming days.

Figure 44

Drawing representing the theme of tools for self-care (P658)



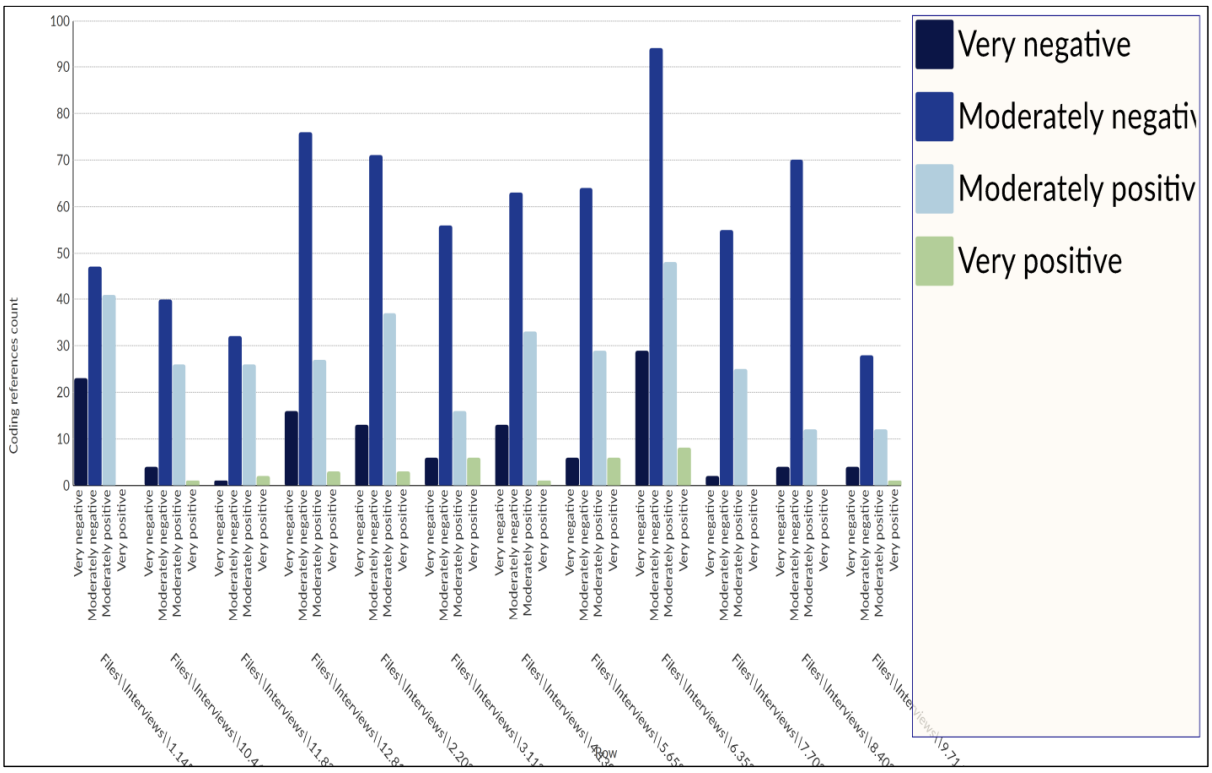
6.3 Suggestions for improvement.Majority of the children felt that the intervention did not need any further improvement while some expressed that more activities could be added for the future participants.

> *"Little little changes can be done. Kids can get to learn new things."* (P817, personal communication, December 1, 2019).

The results of the matrix coding showed that the boys felt more prepared about disasters while girls believed that the other kids will benefit from the intervention. The younger children felt more confident to deal with the disasters than the older children after the intervention.Children with high exposure were confident about their skills and believed the intervention to be useful to other kids. Finally, the practical benefits of intervention such as disaster preparedness were understood and applied more by the children from public schools. In order to understand the emotional tone of the participants, a sentiment analysis was conducted by the researcher. The analysis revealed that the overall emotional response of the participants towards trauma was moderately negative which shows that the earthquake had an impact on the children.

Figure 45

Graphical representation of the sentiment analysis of Phase 3



Based on the above mentioned results, it can be concluded that the sessions were beneficial in addressing and reducing the effects of earthquake on children. The impact of the art-based intervention varied based on gender and was found to be suitable mainly for younger children, those with high exposure, and belonging to public schools.

Chapter 5

Discussion

The aim of the study was to identify children with emotional and behavioural problems after the earthquake and provide an art-based intervention to help deal with the effects of trauma. Prior to the main research, the researcher had conducted preliminary surveys and pilot study to determine the suitability and feasibility of the method. The pre-field surveys highlighted the role of schools in disaster management as every school developed their own method to help the students return to their normal lives. Despite the variation in their approach, the common factor among the four schools was the use of arts such as music, dance, drawing etc to help children forget the earthquake experience. The duration of these entertainment classes varied but the teachers reported that these classes motivated children to come to school and forget the worries of the earthquake. Parents were worried to send their children to school as they feared they might be left behind if an earthquake occurred during school hours. The school authorities addressed this fear by counselling the parents while the government inspected the school buildings and marked them as safe or unsafe to provide assurance to the parents.

During the initial stages, teachers reported that the children experienced the effects of the earthquake though these behaviours lasted for short period of time. In every school, children displayed signs of trauma such as fear, worry, being easily startled etc which proves that the earthquake had an impact on the children. The interviews found that there was a belief among the teachers that younger children did not understand that a major disaster had occurred even though they displayed the signs. This belief that age protects the children prevented teachers from associating the behaviours with the recent earthquake. The teacher assessment of SDQ done after three years of the earthquake also show that some of the

children had high emotional and behavioural difficulties. Furthermore, the teachers shared that the tool was simple to understand and can be easily understood by any parent with a minimum level of education thus establishing the face validity of the tool. All the teachers reported that the parents did not share any problems that their children were facing after the earthquake. The reason behind this could be that the parents themselves were dealing with the effects which led to a failure to observe their children or the school could not include parents in the recovery programs which would have encouraged them to share their concerns with the school authorities. In Nepal, the responsibility of raising children usually falls on the mother. This cultural practice was seen in the schools as the teachers reported that it was the mothers who came to discuss about the progress of the child during the parent meetings. This could mean that researchers need to include mothers in studies to get a complete understanding of the child.

From the surveys, it was found that children from both the countries are interested in art. In Nepal, colour pencils and crayons are the preferred art materials of children and the style of teaching art is copying a pre-existing drawing . The importance given to art was less in public schools as compared to the private schools which could be due to reasons such as lack of funds, unavailability of art teachers, large numbers of children, inability of children to afford art materials etc. Age played a role in the interest of children towards art. During the art sessions, it was found that younger children drew freely and enjoyed the process unlike the older ones who were more worried about the final product and thus took more time to complete a simple task. The art teachers who were interviewed during the surveys also shared that the older children were less motivated to engage in art classes. Group art sessions helped children to feel comfortable and encouraged team work but the therapist has to make sure that the materials are sufficient and the activities maintain their curiosity and attention. These

preliminary surveys proved that art is a healing agent and taking immediate preventive steps after disasters are likely to reduce the impact of trauma on children.

Phase 1

The results of Phase 1 have been grouped below based on the variables investigated in the study.

Overall emotional problems

Based on the assessment by the parents, it was found that children experience emotional problems such as conduct problems, hyperactivity-inattention, peer problemseven after three years of the earthquake. Studies conducted in the time periods ranging from a year to 25 years after disasters show that individuals display the effects of trauma such as PTSD, anxiety, emotional problems and depression years later from the event (Goenjian et al., 2020; Kumar et al., 2016; Liu et al., 2011; Piyasil et al., 2007). A possible reason behind the long term effects of disaster could be the occurrence of aftershocks which happen even till the present date. Disasters are perceived as a threat to one's life and aftershocks act as a reminder of the initial fear and helplessness experienced by the individual. The constant reminders of the earthquake are likely to cause cognitive, emotional and behavioural changes in the individual(Acharya et al., 2018; Piccardi et al., 2017).

Gender

There was a difference between the gender in terms of the emotional problems. Conduct, hyperactivity and peer problems were more among the boys than the girls but there was no difference in emotional problems subscale. The higher scores in pro-social scale show that the girls were better at asking for help from others. Though the present study found gender differences in response to trauma, the findings of the other studies show mixed results. Studies show that women are more likely to experience problems with PTSD, introversion,

anxiety and suicidal ideation than men (Bal, 2008; Erkan, 2009; Kane et al., 2018; Ying et al., 2014). However, this does not mean that men are immune to the impacts of trauma. Men display externalising behaviours such as substance abuse, aggression etc and focus more on the indirect risk of trauma unlike the women (Kane et al., 2018; Xu et al., 2016). There are some studies which did not find gender to be risk factor for trauma (Dewaraja et al., 2006; Irwanto et al., 2015; Kar et al., 2007; Kumar et al., 2016). There are multiple reasons behind the wide variations in results with regard to gender. The first possibility is the use of parents to assess the behaviour of children. Similar to the present study, parents are usually the source of information when children are considered for research. While parents are reliable sources, they are more likely to report externalising rather than the internalising behaviours of the children. This could be the reason behind the lack of difference in the emotional problems subscale in the study and it is possible that differences would exist if children themselves assessed their emotional state (Pfefferbaum & North, 2008).

The child-rearing practices differ based on various factors such as culture, religion and country. This process of socialisation could be the reason behind the difference in how each gender responds to trauma. In Asian cultures, girls are taught to internalise their feelings as they are expected to show qualities of patience and elegance. The boys, on the other hand, display their masculinity by engaging in acts of aggression and refusing to seek help for their problems. This allows us to state that trauma impacts both gender but their responses differ due to the societal factors (Axinn et al., 2013). Another possibility for girls in the sample to be less affected could be due to the coping style adopted in Nepal. Majority of the parents and teachers reported that the children had forgotten about the earthquake. Forgetting is a coping skill to protect the self from painful memories and it is considered as a sign of healing to be able to forget the details of trauma (Kohrt & Hruschka, 2010). It is possible that the girls used this cultural learning to deal with the effects of the earthquake and thereby causing less impact

on their personal lives.It is hard to conclude whether gender differences exist but it is certain that there are many constructs that need to be explored before we can fully understand the relationship between gender and trauma.

Level of exposure

Exposure to trauma resulted in higher levels of emotional problems in children. As a categorical variable, the level of exposure did not show any influence on the symptoms of the children. However, when exposure was analysed as a continuous variable, it was found that children exposed to incidents of death and destruction had higher emotional problems which proves that dose-response effect exists in the sample. A similar method was adopted in studies analysing the effect of exposure on individuals after trauma (Acharya et al., 2018; Goenjian et al., 2020).Exposure has been identified as a consistent predictor of trauma as different studies have shown that being directly exposed to trauma increases the likelihood of suffering from various disorders (Axinn et al., 2013; Derivois et al., 2014; Neria et al., 2008; Spell et al., 2008). A study by Dewaraja et al. (2006),however, did not find any difference in anxiety between the affected and non-affected children after a tsunami. This study supports the weak relationship between exposure and trauma identified in the present study but there are possible causes behind this finding. A retrospective account was taken from the children about their experience of the earthquake. While the details concerning death, destruction or injury are less likely to be forgotten, children could have failed to recall these details during the assessment. Furthermore, the method adopted to collect information about exposure to the earthquake could have also influenced the details shared by the children. Despite the precautions taken by the researcher, since the children completed the forms in their classrooms, they could have chosen not to share all the information for the fear of being judged by their peers. Nevertheless, the changes in behaviour observed by the parents support the finding that exposure to the earthquake resulted in difficulties in personal and social lives of the children.

Socio-economic status

The influence of socio-economic status measured in terms of income was only seen in the emotional problems subscale. This shows that children living below the poverty line are likely to face emotional problems because less income would result in problems such as family conflicts, lack of access to health care and struggles to meet basic needs. Income as a variable has been explored by different studies but the results are varied similar to gender. Lower income was directly related to higher problems in some studies (Henderson & Elsass, 2015; Spell et al., 2008; Xu et al., 2016) while Kumar et al.(2016) in their study found no differences in emotional and behavioural problems in children as a result of their social status. A better option to identify the influence of socio-economic status would have been to include aspects such as maternal deprivation and hardship to get a clearer picture about its role in trauma (Munsell et al., 2016).

Type of family

The results of the study support the hypotheses that the type of family has no significant difference on the long-term emotional problems experienced by children affected by earthquake in Nepal. Similar to the present study, a research conducted in India did not find any difference in emotional and behavioural problems in children as a result of the type of family (Pathak et al., 2011) but a study in Nepal found that adolescents living in joint families had higher rates of PTSD (Sharma & Kar, 2019). It is possible that this variable did not have any influence in this study because some of the children were not living with their families and this change in family dynamics could have affected their behaviour. Family is a complex institution and the need to consider factors such as parental psychopathology, parenting style, parent-child relationships etc makes it difficult to pinpoint the actual mechanisms in which family influences the emotional problems in children. However, there

are studies which have shown that poor mental health of parents could lead to psychological difficulties in children and adolescents (Endo et al., 2007; Spell et al., 2008).

Phase 2

An art-based intervention based on the work of Judith Herman was conducted in four schools. There were six groups of children who participated in the intervention. The results of the pre and post test and the overall experience are described below under different themes.

Importance of treatment

From the results of the Phase 1, it was determined that there is a section of children who are facing emotional and behavioural problems even after three years of the earthquake. It is important that the children receive timely help as these problems affect the different domains of their lives. The art-based intervention provided relief to the children through the medium of art and the responses from the children as well as the parents prove that treatments need to be implemented in the long-term. Studies have shown that exposure to a trauma leads to long-term distress in those who do not seek treatment and any form of treatment is better than no intervention (Goenjian et al., 2020; Pfefferbaum et al., 2016; Piccardi et al., 2017). Thus, to target individuals who show delayed effects of trauma, interventions are an essential component of disaster recovery programs in the country.

Reduction in symptoms

After the art-based intervention, children in the treatment group experienced a reduction in total difficulties, emotional problems, hyperactivity-inattention and peer problems. The results prove the effectiveness of art as a trauma treatment for children in Nepal. The efficacy of art has been shown in other studies that dealt with stress, anxiety, emotional and behavioural difficulties (Cortina & Fazel, 2015; Hass-Cohen et al., 2014;

Kaimal et al., 2016) and has been used to treat child trauma in different settings (Eaton et al., 2007). Art is an effective medium for trauma as it allows individuals to develop a narrative and deal with the memories without becoming overwhelmed. Children were given the freedom to decide the trauma memories they wished to share and some did choose to only enjoy the art process (Chilcote, 2007; Orr, 2007). In the intervention, children participated in a variety of activities that taught them relaxation, sharing, coping techniques, team-building etc which helped them to deal with their problems (Chilcote, 2007; Coholic et al., 2009).

Learning about emotions

After a trauma experience, individuals struggle with emotional regulation. Though the event is over, the body is unable to understand that the danger has passed. Thus, the individual stays in constant alert which makes them easily triggered. This inability to understand and explain emotions after trauma was identified in the drawings made by traumatised and non-traumatised children. The children with no experience of trauma were better at describing their emotions than the traumatised children (Oncu et al., 2009). In the intervention, this effect of trauma was targeted by educating children about emotions and encouraging them to express their feelings while explaining the drawings. This learning could have impacted their daily interactions and allowed them to handle their issues in a better way. A study by Ugurlu et al. (2016) also found similar results as children prior to the art intervention were unable to identify their emotions but after the intervention parents reported that the children became more expressive and self-confident.

Effectiveness of group

Trauma is a painful experience. Though it is believed children are immune to the effects of trauma, the results of the study show that this is not the case. In the intervention, children shared their trauma memories which for some was the first time they verbalised their

fears and worries. It is not an easy task to talk about death, injury or threat experienced but the children were able to communicate these details in the group. While the characteristics of art did contribute to the process of sharing, the role of the group also needs to be acknowledged. Being in a group provided a safe space where children could hear stories that helped them to understand that they are not alone in this journey of healing. The presence of peers who encouraged and supported them provided validation to their feelings. A group is considered a place where the members learn about themselves and others in a non-threatening manner which aids in healing (Chilcote, 2007; Coholic et al., 2009; Rankanen, 2016). It is possible that the children learnt social skills during these group sessions which helped to reduce peer problems in the sample. It is still debatable whether group or individual sessions are better for addressing trauma (Pfefferbaum et al., 2016) but in the present study, the group sessions provided a chance for children to work together and motivated them to talk about their painful memories.

Suitability of school-based interventions

Stigma is a main barrier for seeking help for mental health issues in Nepal. To add to this obstacle, lack of awareness about mental health and poor infrastructure makes it difficult to tackle the psychological problems in the society (Hall et al., 2016). The intervention was able to overcome these challenges by selecting schools as the site for providing care to the children. There is a possibility that the parents would have denied permission if the children were approached in their respective homes. But as the schools helped the researcher to reach out to the parents, the fears regarding mental health was controlled. Furthermore, as the intervention was conducted in schools, the children were able to adjust easily in a familiar environment. There are three factors that play a role while making a decision about the site for the intervention. These include the ease of access, anticipated outcomes and the nature of the intervention to be provided to the sample (Pfefferbaum et al., 2016). As the participants in the

study were children, schools are the best place to target large groups for effective utilization of time and resources. The intervention required children to engage in art which was a common task in most schools and therefore does not involve any harm to the participants. All these three factors are achieved by a school-based intervention.

The results show the school-based intervention was effective for emotional and behavioural difficulties being faced by children and considering the stigma, such type of interventions need to be applied more in mental health outreach programs. Parents were able to observe the differences in their child which shows that the positive behaviours were not limited to the art sessions alone but extended to their home environment. A similar effect of school-based intervention was identified by teachers who reported positive changes in the children during class hours after the intervention (Cortina & Fazel, 2015). It is difficult to conduct school-based interventions due to factors such as children leaving schools, fear of children missing too many classes, examinations etc but the long lasting impacts of school-based interventions outweigh these obstacles in implementation. A study found that adolescents who had received school-based trauma interventions 1.5 years after the earthquake showed lower levels of PTSD and depression when assessed 25 years later in comparison to those who did not receive such treatments (Goenjian et al., 2020). Hence, the results prove that school-based interventions are suitable for the Nepali society as they can provide mental health care to the children that is long-lasting and free of stigma.

Use of multiple methods

In Phase 1, parents reported the symptoms of the children using strengths and difficulties questionnaire. In Phase 2, children shared their concerns through the medium of art. While there were similarities in the two sources of information, there were areas that proved the need for using multiple methods while collecting data.Parents were able to observe

the visible signs of distress such as anger outbursts, restlessness, refusal to attend school, inability to perform tasks independently etc but the emotional state of the children were not understood by parents. While parents reported that the children had not seen any death or destruction, during the intervention, the children drew drawings and shared stories of loss and grief. This does not show the failure of parents but a need to educate them about the hidden impacts of trauma and importance of communication after disasters to understand the mental state of the children (Kar et al., 2007).

Secondly, children completed the exposure forms which involved details about the death, injury and difficulties faced after the earthquake. The possibility of children withholding information which led to a weak relationship between exposure and trauma symptoms in the results of Phase 1 has been discussed earlier. The drawings made by the children during the art sessions prove that this was the case. Children who did not report any incidents of death or destruction in the exposure scale shared their experiences of being a witness to such painful moments in the intervention. It is possible that the accepting and safe environment in the art sessions encouraged children to share which was not present during the group administration of the scale but it shows the need to use different assessment methods before drawing any conclusion. Similar to this finding, in the study by Izadkhah and Gibbs (2015), children did not express fear of the earthquake but it was reflected in their drawings. Finally, children and parents react differently after a disaster. While parents may believe that their child is unaffected by the disaster, children may be experiencing issues that they do not know how to handle. This difference in perspective was also identified by McDonald et al. (2019)where teachers considered behaviour to be indicative of a problem while children considered their inability to handle feelings as a reason for concern. As children are the vulnerable groups after a natural disaster, it is important to consider their voices along with

the input from the parents to ensure that the causes behind the problems are detected at an early stage.

SDQ as an evaluation tool

In Nepal, a lack of validated tools prevent researchers from conducting studies. This problem was faced when conducting the present study as well. There are three main tools used for assessing emotional and behavioural difficulties in Nepal. They are Child Behavior Checklist, Conners Parent Rating Scale and Strength and Difficulty Questionnaire. Out of the three, strengths and difficulties questionnaire is provided free of cost which increases its chances of utlization(Shakya, 2019). The children in the study were screened using SDQ in the initial phases and later their behaviours were evaluated post intervention using the same tool. The tool was able to identify the differences between the two groups after the intervention. Other studies have also used SDQ to evaluate the effectiveness of art-based intervention for emotional and behavioural difficulties in children (Cortina & Fazel, 2015; McDonald et al., 2019). Considering factors such as lack of funds for research, disinterest to participate in mental health surveys, poor access to education etc, this tool can be used by researchers to evaluate interventions as it is a simple, brief and reliable assessment for children and adolescents.

Art for developing countries

According to Qi et al. (2016), the two goals of early intervention are to prevent symptom development and to promote remission in the affected groups. The earthquake brought challenges and revealed drawbacks of the existing health sector of the country. Along with the lack of tools, there is also a shortage of trained mental health professionals and appropriate interventions for the Nepali population. As explained earlier, stigma is prevalent in the society and if the intervention is not designed to address this issue, there are high

chance of failure and loss of resources. Interventions need to be localised to increase participation from the community(Kohrt & Hruschka, 2010). Art is a universal medium and common in every culture. Moreover, the art-based intervention used in the present study can be easily taught and implemented by the laymen. Art acts a bridge to help individuals communicate their trauma memories symbolically and has been shown to be a reliable medium to understand the internal world of the clients (Chilcote, 2007; Oncu & Wise, 2010; Orr, 2007). These advantages of art-based interventions show the need to promote art as a trauma treatment for developing countries who do not have the sufficient resources for monitoring and implementing timely help to its citizens.

Phase 3

After the screening of children for emotional and behavioural difficulties in Phase 1 and providing an art-based intervention in Phase 2 for those in the higher range, the goal of this phase was to identify the processes influencing the changes in the treatment group. Previous studies have identified that art basedresearch fail to incorporate the voices of the clients and due to this reason the mechanisms behind the therapeutic process and unique changes experienced by the participants are left unexplored. Moreover, quantitative tools only provide information about whether there was a reduction in the symptoms but interviews help to find the factors behind the outcomes(Cortina & Fazel, 2015; Eaton et al., 2007; Rankanen, 2016; Van Lith, 2016). Therefore, to address this gap in the field, the researcher had interviewed 12 participants about their experience and the factors that they found helpful to achieve their goals in the intervention.

A thematic analysis of the interviews identified six global themes which correspond to the four core processes identified by the body-mind model (Czamanski-Cohen & Weihs, 2016). This model proposes that art activates both the body (body sensations) and mind

(emotions) and thereby brings a holistic change in the individual. The four processes include triangular relationship, self-engagement, embodied self-expression and meta-cognitive processes. The four processes evolve in a hierarchical fashion and helps clients experience the benefits of art-making in the sessions. The body-mind model is explained below in relation to the themes identified from the interviews of children.

A new schema

In the first phase of the study, the influence of exposure to trauma on emotional problems was identified based on the parental reports. The responses of the children in the interviews reveal the different effects they experienced after the earthquake such as anger, nightmares, poor health, bullying etc. Other studies have also identified similar effects of trauma such as sleep disorders, fear, intrusive thought, functioning impairment, irritability and fear of reoccurrence(Irwanto et al., 2015; Kane et al., 2018; Kar et al., 2007; Piccardi et al., 2017; Piyasil et al., 2011). The earthquake was a new experience for the children and changed their views towards life. The world was perceived as a dangerous place due to the constant triggers in the form of aftershocks and other trauma reminders. As the children did not receive any treatments despite these effects of the earthquake due to possible factors such as ignorance, lack of attention to mental health, belief that children are immune to disasters etc, the trauma symptoms persisted leading to long-term problems in the children. Witnessing death, experiencing consistent threat to life, injury to self etc are risk factors that have been found to sustain trauma symptoms in individuals (Liu et al., 2011; Piccardi et al., 2017).

An expression space

The art-based intervention conducted in this study was focused on providing a platform for children to share their trauma memories. Children were asked to draw and talk about painful subjects such as losing a friend, seeing death for the first time, being trapped

inside the room during the tremors etc. While children were given the freedom to decide the details they wanted to share, it was important that a safe space was created to allow children to share without judgements. In the interviews, children expressed that they enjoyed participating in the art activities, coming to art class, engaging with the art materials, sharing their stories and interacting with the therapist. These positive feedbacks prove that the researcher was able to create feelings of safety in the children through these aspects of art which according to the body-mind model corresponds to the process of triangular relationship. This model is based on theory of attachment and therefore considers therapist as an attachment figure. The interaction of the three elements; the art therapist, art process and art product, creates feelings of secure attachment in the clients. This development of a secure relationship promotes exploration and repair in the clients. The art therapist observes, provides the needed resources and supports the clients when they are in distress(Czamanski-Cohen & Weihs, 2016). The importance of the therapist for healing has been highlighted in other studies which talk about the need for a therapist to be flexible, motivating and helpful in difficult scenarios (Orr, 2007; Rankanen, 2016). Children experienced these qualities in the art sessions as expressed in the themes of character, engaging lessons, non-judgemental etc which encouraged them to express their fears and worries freely in the group. The themes of art activities (enjoyable, learning), art class (experiencing emotions, exploring the new) and art materials (sensory stimulation, familiarity) show the effectiveness of art-based intervention as a non-threatening and safe way to elicit the memories of trauma. Art provides relaxation, happiness and entertainment (Kaimal et al., 2016; McDonald et al., 2019). But these outcomes are attained only when there is a sync among the goals, interest of the client and traits of the therapist (Van Lith, 2016) which was achieved in the study.

Drawing the trauma

After the establishment of safety (Herman, 2015) with the help of the triangular relationship, the next process in the model is self engagement(Czamanski-Cohen & Weihs, 2016). The main task of the children was to express their trauma using art. In this journey of art expression, they were motivated and engaged in their task with support of their group members. Children perceived the group as friendly with whom they learnt how to handle conflicts, work as a team and achieve better results. There were some participants who were self-motivated but majority of the children found individual activities to be boring and difficult. This shows that along with the therapist, art activities and art materials, the interest of the children were sustained by the group environment. Being in a group allows one to learn about oneself, share a common experience and understand they are not alone in their journey (Chilcote, 2007; Coholic et al., 2009; Ugurlu et al., 2016). This ultimately improved the window of tolerance as the children could remain focused in their task without being overwhelmed. As the children did not feel threatened in the art sessions, sharing was easier among the children as seen in the themes of sense of relief, predictability and art as a facilitator. Some children did experience difficulties in sharing due to their personality, trauma memories and fear of distress similar to the participants in the study by Rankanen (2016)but the theme of opportunity to express and be heard shows that children appreciated the validation received from the group members. According to Quaglietti (2018), being able to share one's experiences with peers increases support and creates witness for one's journey to recovery which is likely to help individuals remain committed throughout the treatment. Furthermore, this engagement with arts was possible as children understood the importance of art. Children experienced a desire to make art (Kaimal et al., 2016) and the different ways in which art can be used maintained their curiosity in the sessions. According to the body-mind model, this level of self-engagement is possible because of an integration of body (using art

materials, movement for art activities) and mind (feelings of validation, purpose and safety from therapist and the group) in art sessions.

In the previous phase, it was found that the treatment group experienced a significant change in their emotional problems after the art-based intervention. During the interviews, children shared the moments in the art sessions where they experienced this difference in themselves. The themes of drawing the trauma, sharing stories, lived experience etc reveal the different ways art creates changes in individuals. According to Holmqvist et al.(2017), one of the ways in which change can be identified in art sessions is through affect consciousness which is the ability of the clients to express the changes experienced in the sessions verbally. Through the above mentioned themes, it is proven that the children experienced this transformation in the art sessions. Another core process in the body-mind model is embodied self -expression which refers to the opportunity provided by art to externalise the somatic knowledge in the form of an art product and verbalise it through the process of reflection (Czamanski-Cohen & Weihs, 2016). This core process corresponds to the theme of healing shared by the children. Art was seen as a safe place to express one's emotions and find a way to deal with the painful thoughts and worries. Remembering and mourning is an important part of trauma treatment (Herman, 2015) which was facilitated by these mechanisms of change which were healing through art, understanding and maintenance of emotions and understanding of earthquakes.Thus, this global theme of drawing the trauma demonstrated how art-based interventions allow children to understand their experience and acquire skills for their recovery.

Reappraisal of trauma narrative

Art-based interventions have been found to bring about greater understanding of self, develop artistic abilities, improve insight and create emotional awareness(Hass-Cohen et al.,

2014; Kaimal et al., 2016; McDonald et al., 2019; Quaglietti, 2018). These changes identified in different studies werealso shared by the children in the interviews. Through the different art activities, children were able to learn ways to handle the trauma reminders, overcame their fears and experienced a better quality of life. The changes experienced in art intervention was not limited to trauma alone. The resolution of trauma through art allowed children to concentrate in their studies, improve their interaction with their peers and self-regulate in overwhelming situations. These verbal reports of children support the findings of Phase 2 that art-based interventions are effective in handling emotional and behavioural difficulties in children. Furthermore, the knowledge gained by the children was also adopted in their daily lives as reflected in the themes like teaching the community, possibility of future use, relieving boredom etc which proves the practical nature of the intervention. Children understood the applicability of the skills learnt in art sessions which proves topics such as emotional awareness, self-regulation, resilience, interpersonal development etc can be taught using art. This practical side of art could be one of the motivating factors for children to engage fully in the art sessions (Coholic et al., 2009; Rankanen, 2016).

According to the body-mind model, the final process achieved in art therapy is meta-cognition. When a secure relationship is formed that allows exploration without arousal and promotes communication of non-verbal information, a therapist is able to guide the client to analyse the creation from different points of view and thereby forming a new meaning to the experience (Czamanski-Cohen & Weihs, 2016). This stage of the body-mind model was achieved in the study as children were able to transform their narrative in the sessions. Some children were able to move from a position of fear to becoming fearless while others were able to take realistic judgements as they reflected upon their past reactions. The art making allowed them to view their problems in an objective manner which they were unable to do during the time of crisis. It was a moment to look back on the experience and form new

associations with the event which the children were successful in as they shared how they considered themselves as prepared due to the skills learnt and understood that the earthquake was a natural process in the environment. Being able to question one'sown thinking and modify thoughts based on the feedback from the current environment shows that the emotional and cognitive processes are in harmony which thereby signifies growth and repair in individuals.

Protective factors

In the pre-field surveys, teachers shared the different techniques adopted by the school to protect the children against the effects of the earthquake. It is likely that these lessons taught during these initial phases after disaster were remembered by the children. Coping techniques like beating others, silent treatment, sleep, crying etc were some of the strategies children used to deal with the problems prior to the intervention. After the participation in the art-based intervention, children acquired new skills to apply during a crisis such as art, breathing techniques, writing, sharing etc. This increase in resources is a strength of art-based intervention as it informs children about a range of self-care tools that they can use to soothe themselves (Rankanen, 2016; Ugurlu et al., 2016). Another important protective factor after disasters is social support. All of the children had a support system to rely on during a difficult moment. For some it was the family who helped them regulate while for others it was the friends and school who provided the support they needed to overcome a problem. Social support has been identified to reduce distress, PTSD symptoms and is an essential element to protect individuals from long-term impact of disasters (Acharya et al., 2018; Goenjian et al., 2020; Henderson & Elsass, 2015). Each individual reacts differently after a disaster. The recovery period may differ but regardless of the duration, individuals require the care and support to experience the normal process of psychological repair.Piccardi et al. (2017)stated that treatment is important after a trauma but it is likely that not everyone would seek help.

Due to this, it is important to teach these coping strategiesto all which can protect the individuals and avoid long-term problems in the future. This scenario is a reality in Nepali society.Thus, it is important to conduct these type of school-based intervention to provide the tools to the children such that in case of a future disaster, they do not have to struggle as a result of the ignorance in the society.

Future benefits

Along with overcoming the negative effects of earthquake, children also shared the confidence to deal with future disasters as a result of the art-based intervention. These sessions taught children ways to protect themselves and being able to apply these skills during aftershocks further increased the confidence of children in disaster preparedness. Drawing as a tool to teach and assess children about disasters was proven in the study by Izadkhah and Gibbs (2015). The feedback of the children supports the findings of this study and can be taken as an alternative way of teaching children about disaster management in Nepal. These skills are important as it helps children feel that they are not helpless and can protect themselves and their loved ones. In a study by Irwanto et al. (2015), it was found that being unable to escape after a tsunami was one of the traumatic experience associated with PTSD in children. Children need assistance after a natural disaster but if they are educated about such events, they are protected against unreliable information and do not develop a fear of the unknown. In addition to identifying the benefits they experienced in their personal lives, the children reported that the art-based intervention can be helpful to other children as well. They expressed that the skills of emotional management, improvement in one's life, freedom from fear etc can be achieved by those who participate in the intervention. This shows that the art-based intervention is suitable for children not only to deal with the trauma but also to learn ways to further improve their lives. Furthermore, the ability to consider those in the community shows that the children are ready to share their experience with others which is

the final phase of trauma treatment in the model given by Herman (Herman, 2015). In response to the suggestions for the intervention, children spoke about including more activities in the future but overall they were satisfied with the content of the intervention. This shows that the art-based intervention was able to meet the expectations of the children which is similar to the responses given by the children in the study by McDonald et al. (2019) where apart from minor changes in aspects such as timing of sessions, art room, more time to play etc, majority of the children wanted the intervention to follow the same format.

In conclusion, the feedback from the children along with the improvements observed by the parents prove that the art-based intervention can be implemented on other children affected by long-term emotional problems due to the earthquake in Nepal.

Chapter 6

Summary and Conclusions

The present study aimed to identify the long-term emotional problems in children affected by the earthquake in Nepal. The researcher conducted an art-based intervention to promote expression of trauma and thereby reduce the emotional problems in the children. The feedback of the children about the intervention was collected through interviews to find the processes that contributed to a change in the participants.

In the introduction chapter, the importance of middle childhood was explained in the development of children. The need to focus on child and adolescent mental health for overall progress in developing countries was highlighted in this chapter. There are different ways in which the effects of trauma can be seen in the children which is not only limited to PTSD. The next part focused on the effectiveness of using art as an intervention for treating trauma in individuals. Disasters affect every aspect of an individual's life and in the case of children without appropriate help, they struggle to adapt to the change in the environment. In Nepal, the mental health sector is weak which calls for more attention to the needs of children after the earthquake.

The review chapter focused on the various studies done in the field of trauma, art and mental health of Nepal. The risk factors for trauma are varied and there is a need for conducting long-term studies to trace the effects of trauma. Earthquake is a phenomena that has occurred in different parts of the world and the studies showed the level of impact such disasters had on the individuals. The studies on Nepal focused on the problems of mental health sector and the impact of the earthquake on children and adults. Art has been used in a

variety of settings and with focus to certain conditions, studies show that it can be implemented in crisis situations as well.

In the method chapter, details was provided about the sample and the tools used to explore the impact of earthquake on emotional problems. Two pre-field surveys and a pilot study was conducted to identify the challenges and suitability of the art-based intervention for the children of Nepal. The first phase of the main study involved asking parents to assess the emotional and behavioural difficulties of the children after the earthquake. In the second phase, an art-based intervention was provided to the children with high emotional problems. Finally, an interview was conducted to understand the experiences of the children and to explore the factors responsible for the changes seen in the treatment group after the intervention.

Major findings

After an earthquake, members of the society struggle to return to their normal lives. The uncertainty and unpredictability created by the experience prevents individuals from performing their daily activities. When this situation was created after the earthquake in Nepal, schools and government worked together to build confidence in the parents so that they could help their children adjust to the new environment. This simple and cost-effective measure taken immediately after the earthquake could have reduced the effects of the trauma in children .

When a crisis occurs, individuals are naturally drawn towards the arts. Arts have been a part of the human existence since centuries and its healing properties are yet to be explored fully. Children are inclined towards art in the form of drawing, dance, music etc and these different forms provide a distraction as well as a way to self-regulate. After the reopening, the schools in Kathmandu conducted arts program to encourage children to forget about the

earthquake and motivate them to attend their classes. Older children were found to be less inclined towardsart which could be due to factors such as comparison with others, focus on the product than the process and negative feedback about the art from their closed circle.

According to the teachers, initially,the symptoms of trauma were visible in majority of the children but with time they reported that the children had forgotten about the earthquake. However, an assessment conducted by the researcher showed that the effects of the earthquake was present in children even after three years. The long-term effects of the disaster in the form of emotional and behavioural difficulties was seen on children who are males, have a higher level of exposure and live below the poverty line.

There was a mismatch between the child and parents reports of trauma. While parents were found to be reliable sources for externalising behaviour of children, they failed to report about the death ,destructionand injuries seen by the children during the earthquake.

School-based art intervention was found to be effective in reducing emotional, hyperactivity-inattention and peer problems in children affected by the earthquake in Nepal.

The responses of the children show that the earthquake altered their perceptions about themselves and the world. The school-based art intervention provided an opportunity to express and engage with the different aspects of art. Through an engagement with art, children were able to transform the trauma narrative, acquire coping strategies and develop an understanding of the trauma. These elements of art contributed to a change in their attitudes towards self and trauma. Children were also motivated to apply and teach these skills to others in the community and were satisfied with the overall experience in the intervention.

Implications

The findings of the study adds to the limited literature on child disaster studies from lower income countries. Due to this reason, the findings are applicable to a variety of areas that involve children, mental health and disasters.The long-term impact of disasters identified in the study point to the need to conduct continuous monitoring of the affected population after the event. This is important to identify the mental health problems and provide timely interventions to the vulnerable groups thus improving their quality of life.

The interventions need to designed as per the risk identified in the population. The study identified that children with high exposure have more emotional problems. Priority should therefore be given to areas that are highly affected to ensure that the individuals receive the support and care needed to recover from the disaster.

Both the quantitative and qualitative results support the use of art-based intervention as a trauma treatment for children in Nepal. While there are some instances of art been used in clinical settings, there are no standard guidelines of using art for treatment and a lack of research studies that show the efficacy of art for children in Nepal. The findings of this study can be a catalyst for promoting such interventions which are both enjoyable as well as allow children to find a solution to their problems. Furthermore, it also adds to the research literature of art-based intervention in South Asia. Considering the similarities in culture, the research protocol can also be applied across South Asia as the results have established the effectiveness of the intervention. A collaboration among South Asian researchers would help to develop a common art-based intervention for trauma that takes into account the cultural factors which is absent in the interventions adapted from the Western countries.

Children are considered to be a vulnerable group after a disaster. As Nepal is prone to disasters, it is important that the children are provided relevant disaster skills training. In the

interviews, the children had spoken about how information about the earthquakes had reduced their fears and worries. When children are trained, they do not feel helpless and become capable of protecting themselves and their loved ones. Children can also influence their parents and community to be prepared for future disasters which can reduce the loss of lives and property. The concerned authorities need to prioritizedisaster preparedness training for the children because it can also help them deal with the aftershocks that occur frequently in Nepal.

Due to the barriers like limited resources, stigma, untrained manpower etc, the mental health sector has not been able to improve like the other sectors. One solution to this problem is including parents and teachers in the treatment program for children. In the study, parents were able to observe the change in their children while the teachers were able to note the common challenges being faced by the children after the earthquake. Children depend on parents to adapt after a disaster and when parents are educated about mental health, they are likely to pay attention to their own and their child's psychological state. Based on the results, it is important that parents are educated about the gender differences so that they are able to identify the early signs of mental health issues. In addition, school-based interventions are effective as they include teachers in the process of recovery. While they may not play a direct role, it was found that teachers provide information about the child which the researcher may have overlooked. Thus, researchers need to develop school-based interventions that can incorporate parents and teachers as active participants to ensure support in all domains of the child's life.

There is a need for mental health professionals to work together with researchers so that the urgent problems are targeted on time. A lack of funds prevents researchers from studying large groups of people and implementing interventions at the same time. If researchers partner with clinicians then the limited resources can be directed for the affected

groups and effective interventions can be applied to the population sooner. This also lessens the workload of the clinicians as evidence-based treatments reduce the recovery period and their feedback on the feasibility of the intervention allows researchers to modify them for future use.

Social support was one of the protective factors identified in the study. The concerned authorities should try to maintain social support after disasters in the future. Nepal has a collectivistic culture so it is possible to assume that individuals have a strong support system. The social institutions should take appropriate measures to ensure that both the children and parents receive the required physical, economic and social support to recover from the traumatic experience.

There is a need for a mental health policy that targets the needs of the children. Along with the creation, the policy needs to be implemented for it to be effective. There are certain guidelines for protecting child mental health but due to the lack of funds and supervision, they are not applied in the schools. The school management needs to be educated about the importance of mental health and government should create policies that help school authorities and clinicians easilyimplement the child-friendly strategies.

Finally, the challenges being faced by the researchers in Nepal need to be resolved. Along with monitoring the research studies, researchers should be encouraged to conduct studies in Nepal. Unless the stigma towards mental health is eradicated, it is difficult to recruit participants in the study. The creation of a research culture that promotes collaboration and sharing of ideas will help to communicate the research findings and identify the gaps in child research. Unless the society as a whole accepts and understands the research culture, it will be a challenge to conduct large scale studies in Nepal.

Limitations

The study relied on parents to gather information about past trauma, psychopathology or any other stressors. However, some of the parents did not answer this question which could due to the stigma towards mental health present in the society.There is a possibility of parental bias as the emotional problems of the children were determined based only on parental reports. It would have been better to include teacher's assessment but it was not possible due to time constraints faced by the researcher and the teachers.It is possible that some of the problems identified in the children were present before the earthquake. This lack of data on pre-disaster functioning is common among disaster studies because it is not possible to predict disasters and conduct research beforehand.Multiple variables can influence the reactions of individuals to trauma such as parental psychopathology, social support, type of parenting, resilience of children etc which were not considered in the present study. Though the study was able to identify certain processes that are present in an art therapy session, there could be other factors that influenced the changes seen in the children.The data was collected only from children in Kathmandu. While this reduced the heterogeneity in the sample, it also limited the generalizability of the results to the other areas of Nepal.

Scope for future research

Future researchers need to conduct longitudinal studies of trauma using robust research designs and tools validated in Nepal. This will help to chart the course of trauma which will allow us to differentiate between short and long term predictors of trauma, identify the high risk groups and develop a baseline data to compare against in future disasters. Furthermore, researchers need to explore other effects of trauma beyond PTSD so that we can know the range of disorders caused by a trauma experience.

The present study focused only on four variables that could impact the emotional problems in children. In the future, studies can incorporate other variables such as mental health of parents, culture, age etc to understand the role of these variables in trauma.

There is a need for evidence-based treatments for children in Nepal. Considering the stigma in the society, researchers need to develop culture appropriate treatments so that the reliance on medications can be lessened in the future. Along with the development, researchers need to explore the long-term benefits and adverse effects of the intervention which will help to provide the best available treatments to the children.

The present study showed the effectiveness of art-based intervention in children. Future researchers can further improve this intervention by adding more sessions, interviewing more children to identify other mechanisms, incorporating teachers feedback and implementing the intervention in different schools of Nepal. Follow-up sessions also need to be conducted in the future to identify the lasting impacts of the intervention as well as to encourage children to apply the skills learnt in their lives.

The development of children depends on parents and teachers. It is therefore important to include both of their voices while conducting research with children. In the present research, informal sessions were conducted with parents and teachers to gather information about the behaviour of children at home and in the school. But in the future, if researchers can conduct formal interviews and include teacher's assessment of children, it can provide a complete background information of the children. Thiswill help researchers to identifyall the possible causal factors behind the problem and to provide concrete suggestions to the policymakers about the ways to improve child mental health in Nepal.

References

Acharya, S., Bhatta, D. N., & Assannangkornchai, S. (2018). Post-traumatic stress disorder symptoms among children of Kathmandu 1 year after the 2015 earthquake in Nepal. *Disaster Medicine and Public Health Preparedness, 12*(4), 486–492. https://doi.org/10.1017/dmp.2017.100

American Psychological Association. (2008). *Children and trauma: Update for mental health professionals*.

Aryal, K. R. (2012). The history of disaster incidents and impacts in Nepal 1900–2005. *International Journal of Disaster Risk Science, 3*(3), 147–154. https://doi.org/10.1007/s13753-012-0015-1

Australian Child & Adolescent Trauma Loss & Grief Network. (n.d.). *Talking to children and young people about trauma*. https://earlytraumagrief.anu.edu.au/

Axinn, W. G., Ghimire, D. J., Williams, N. E., & Scott, K. M. (2013). Gender, traumatic events, and mental health disorders in a rural asian setting. *Journal of Health and Social Behavior, 54*(4), 444–461. https://doi.org/10.1177/0022146513501518

Bal, A. (2008). Post-traumatic stress disorder in Turkish child and adolescent survivors three years after the Marmara earthquake. *Child and Adolescent Mental Health, 13*(3), 134–139. https://doi.org/10.1111/j.1475-3588.2007.00469.x

Bath, H. (2008). The three pillars of trauma-informed care. *Reclaiming Children and Youth, 17*(3), 17–21.

Becker-Blease, K. A., Turner, H. A., & Finkelhor, D. (2010). Disasters, victimization, and children's mental health. *Child Development, 81*(4), 1040–1052.

https://doi.org/10.1111/j.1467-8624.2010.01453.x

Bera, G. (2016). Devastating earthquake in Nepal (2015): A geographical appraisal. *International Journal of Research in Applied, Natural and Social Sciences*, *4*(3), 75–86.

Bloom, S. L. (1999). *Trauma theory abbreviated*. www.sanctuaryweb.com

Bloom, S. L. (2010). Bridging the black hole of trauma: The evolutionary significance of the arts. *Psychotherapy and Politics International*, *8*(3), 198–212. https://doi.org/10.1002/ppi.223

Bloom, S. L. (2011). Bridging the black hole of trauma: The evolutionary significance of the arts part 2: The arts and evolution - what is art for? *Psychotherapy and Politics International*, *9*(1), 67–82. https://doi.org/10.1002/ppi.229

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Briere, J. N., & Scott, C. (2015). Principles of Trauma Therapy. In *SAGE Publications* (Second).

British Association of Art Therapists. (n.d.). *What is art therapy?* https://www.baat.org/About-Art-Therapy

Buchalter, S. I. (2009). *Art therapy techniques and applications* (First). Jessica Kingsley Publishers.

Chaulagain, A., Kunwar, A., Watts, S., Guerrero, A. P. S., & Skokauskas, N. (2019). Child and adolescent mental health problems in Nepal: A scoping review. *International Journal of Mental Health Systems*, *13*(1), 53. https://doi.org/10.1186/s13033-019-0310-y

Chilcote, R. L. (2007). Art therapy with child tsunami survivors in Sri Lanka. *Art Therapy,*

24(4), 156–162. https://doi.org/10.1080/07421656.2007.10129475

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (Second). Routledge.

Coholic, D., Lougheed, S., & Lebreton, J. (2009). The helpfulness of holistic arts-based group work with children living in foster care. *Social Work With Groups*, *32*(1), 29–46. https://doi.org/10.1080/01609510802290966

Cortina, M. A., & Fazel, M. (2015). The art room: An evaluation of a targeted school-based group intervention for students with emotional and behavioural difficulties. *The Arts in Psychotherapy*, *42*, 35–40. https://doi.org/10.1016/j.aip.2014.12.003

Creswell, J. W., & Clark, V. L. P. (2018). *Designing and conducting mixed methods research* (Third). SAGE Publications.

Czamanski-Cohen, J., & Weihs, K. L. (2016). The bodymind model: A platform for studying the mechanisms of change induced by art therapy. *The Arts in Psychotherapy*, *51*, 63–71. https://doi.org/10.1016/j.aip.2016.08.006

Derivois, D., Cénat, J.-M., & Mérisier, G. G. (2014). Multi-natural disasters in Gonaives Haiti: Long-term outcomes among child and adolescents and social support. *International Journal of Emergency Mental Health and Human Resilience*, *16*(2), 79–83. https://doi.org/10.4172/1522-4821.1000115

Dewaraja, R., Sato, H., & Ogawa, T. (2006). Anxiety in tsunami-affected children in Sri Lanka measured by Revised Children's Manifest Anxiety Scale and Synthetic House-Tree-Person Test. *International Congress Series*, *1287*, 74–78. https://doi.org/10.1016/j.ics.2005.12.035

Eaton, L. G., Doherty, K. L., & Widrick, R. M. (2007). A review of research and methods used to establish art therapy as an effective treatment method for traumatized children. *The Arts in Psychotherapy*, *34*(3), 256–262. https://doi.org/10.1016/j.aip.2007.03.001

Eccles, J. S. (1999). The development of children ages 6 to 14. *The Future of Children*, *9*(2), 30–44. https://doi.org/10.2307/1602703

Education, I. (n.d.). *The lives of world's remarkable people*. N.D. https://education.instaforex.com/forex_catalog/lives_of_remarkable_people/world

Endo, T., Shioiri, T., Toyabe, S., Akazawa, K., & Someya, T. (2007). Parental mental health affects behavioral changes in children following a devastating disaster: A community survey after the 2004 Niigata-Chuetsu earthquake. *General Hospital Psychiatry*, *29*(2), 175–176. https://doi.org/10.1016/j.genhosppsych.2006.09.006

Erdur, O. (2002). *Psychological reactions of Turkish earthquake survivors*. University of Texas at Austin.

Erkan, S. (2009). The effects of earthquakes on the behavioral and emotional problems of preschoolers. *The Social Sciences*, *4*(4), 347–354. https://medwelljournals.com/abstract/?doi=sscience.2009.347.354

Feldman, R. (2011). *Understanding psychology* (Tenth). McGraw Hill.

Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice*, *40*(5), 532–538. https://doi.org/10.1037/a0015808

Fievet, V., Singh, K., & Davis, A. (2016). *Children's voices, children's rights: One year after the Nepal earthquake*. https://resourcecentre.savethechildren.net/library/childrens-

voices-childrens-rights-one-year-after-nepal-earthquake

Furr, J. M., Comer, J. S., Edmunds, J. M., & Kendall, P. C. (2010). Disasters and youth: A meta-analytic examination of posttraumatic stress. *Journal of Consulting and Clinical Psychology*, *78*(6), 765–780. https://doi.org/10.1037/a0021482

Gil, E., & Drewes, A. A. (2006). *Cultural issues in play therapy* (First). The Guilford Press.

Goenjian, A. K., Steinberg, A. M., Walling, D., Bishop, S., Karayan, I., & Pynoos, R. (2020). 25-year follow-up of treated and not-treated adolescents after the Spitak earthquake: Course and predictors of PTSD and depression. *Psychological Medicine*, 1–13. https://doi.org/10.1017/S0033291719003891

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(11), 1337–1345. https://doi.org/10.1097/00004583-200111000-00015

Green, A. (2011). Art and music therapy for trauma survivors. *Canadian Art Therapy Association Journal*, *24*(2), 14–19. https://doi.org/10.1080/08322473.2011.11415547

Hall, S. E., Watson, T. S., Kellums, M. L., & Kimmel, J. (2016). Mental health needs and resources in Nepal. *International Journal of Culture and Mental Health*, *9*(3), 278–284. https://doi.org/10.1080/17542863.2016.1185135

Hass-Cohen, N., Clyde Findlay, J., Carr, R., & Vanderlan, J. (2014). "Check, Change What You Need To Change and/or Keep What You Want": An Art Therapy Neurobiological-Based Trauma Protocol. *Art Therapy*, *31*(2), 69–78. https://doi.org/10.1080/07421656.2014.903825

Henderson, S. E. K., & Elsass, P. (2015). Predictors of trauma and distress in Sri Lanka five

years after the Indian Ocean tsunami: A cross-sectional study. *International Journal of Disaster Risk Reduction*, *14*(4), 438–444. https://doi.org/10.1016/j.ijdrr.2015.09.010

Herman, J. (2015). *Trauma and recovery: The aftermath of violence-from domestic abuse to political terror* (Third). Basic Books.

Holmqvist, G., Roxberg, Å., Larsson, I., & Lundqvist-Persson, C. (2017). What art therapists consider to be patient's inner change and how it may appear during art therapy. *The Arts in Psychotherapy*, *56*, 45–52. https://doi.org/10.1016/j.aip.2017.07.005

Horstman, M., Aldiss, S., Richardson, A., & Gibson, F. (2008). Methodological issues when using the draw and write technique with children aged 6 to 12 years. *Qualitative Health Research*, *18*(7), 1001–1011. https://doi.org/10.1177/1049732308318230

Irwanto, Faisal, & Zulfa, H. (2015). Posttraumatic stress disorder among Indonesian children 5 years after the Tsunami. *Southeast Asian Journal of Tropical Medicine and Public Health*, *46*(5), 918–923. http://www.ncbi.nlm.nih.gov/pubmed/26863863

Izadkhah, Y. O., & Gibbs, L. (2015). A study of preschoolers' perceptions of earthquakes through drawing. *International Journal of Disaster Risk Reduction*, *14*, 132–139. https://doi.org/10.1016/j.ijdrr.2015.06.002

Kaimal, G., Ray, K., & Muniz, J. (2016). Reduction of cortisol levels and participants' responses following art making. *Art Therapy*, *33*(2), 74–80. https://doi.org/10.1080/07421656.2016.1166832

Kane, J. C., Luitel, N. P., Jordans, M. J. D., Kohrt, B. A., Weissbecker, I., & Tol, W. A. (2018). Mental health and psychosocial problems in the aftermath of the Nepal earthquakes: Findings from a representative cluster sample survey. *Epidemiology and Psychiatric Sciences*, *27*(3), 301–310. https://doi.org/10.1017/S2045796016001104

Kar, N., Mohapatra, P. K., Nayak, K. C., Pattanaik, P., Swain, S. P., & Kar, H. C. (2007). Post-traumatic stress disorder in children and adolescents one year after a super-cyclone in Orissa, India: Exploring cross-cultural validity and vulnerability factors. *BMC Psychiatry*, *7*, 1–8. https://doi.org/10.1186/1471-244X-7-8

Kohrt, B. A., & Hruschka, D. J. (2010). Nepali concepts of psychological trauma: The role of idioms of distress, ethnopsychology and ethnophysiology in alleviating suffering and preventing stigma. *Culture, Medicine, and Psychiatry*, *34*(2), 322–352. https://doi.org/10.1007/s11013-010-9170-2

Kumar, M., Fonagy, P., & Target, M. (2016). Long term impact of disasters trauma on the psychosocial adjustment of children in Gujarat,India. *African Journal of Traumatic Stress*, *5*(1), 29–37. https://apro-ug.com/ajts/

Landis, J. R., & Koch, G. G. (1977). The Measurement of Observer Agreement for Categorical Data. *Biometrics*, *33*(1), 159–174. https://doi.org/10.2307/2529310

Lewis, M., Haviland-Jones, J. M., & Barrett, L. F. (2008). *Handbook of emotions*. The Guilford Press. https://psycnet.apa.org/record/2008-07784-000

Liu, M., Wang, L., Shi, Z., Zhang, Z., Zhang, K., & Shen, J. (2011). Mental health problems among children one-year after sichuan earthquake in China: A follow-up study. *PLoS ONE*, *6*(2), 1–6. https://doi.org/10.1371/journal.pone.0014706

Luitel, N. P., Jordans, M. J. D., Adhikari, A., Upadhaya, N., Hanlon, C., Lund, C., & Komproe, I. H. (2015). Mental health care in Nepal : Current situation and challenges for development of a district mental health care plan. *Conflict and Health*, *9*(3), 1–11. https://doi.org/10.1186/s13031-014-0030-5

Malchiodi, C. A. (2001). Using drawing as intervention with traumatized children. *Trauma*

and Loss: Research and Interventions, *1*(1), 21–28.

Malchiodi, C. A. (2003). *Handbook of art therapy* (First). The Guilford Press.

Malchiodi, C. A. (2007). *The Art Therapy Sourcebook* (Second). McGraw-Hill Professional Publishing.

Malchiodi, C. A. (2008). *Creative interventions with traumatized children* (C. A. Malchiodi (ed.); First). The Guilford Press.

Masten, A. S., & Osofsky, J. D. (2010). Disasters and their impact on child development: Introduction to the special section. *Child Development*, *81*(4), 1029–1039. https://doi.org/10.1111/j.1467-8624.2010.01452.x

Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (THIRD). SAGE Publications.

McDonald, A., Holttum, S., & Drey, N. S. J. (2019). Primary-school-based art therapy: Exploratory study of changes in children's social, emotional and mental health. *International Journal of Art Therapy*, *24*(3), 125–138. https://doi.org/10.1080/17454832.2019.1634115

Munsell, E. P., Kilmer, R. P., Vishnevsky, T., Cook, J. R., & Markley, L. M. (2016). Practical disadvantage, socioeconomic status, and psychological well-being within families of children with severe emotional disturbance. *Journal of Child and Family Studies*, *25*(9), 2832–2842. https://doi.org/10.1007/s10826-016-0449-y

National Child Traumatic Stress Network. (n.d.-a). *Early childhood trauma*. N.D. http://www.nctsn.org/trauma-types/early-childhood-trauma

National Child Traumatic Stress Network. (n.d.-b). *Earthquake Resources*. N.D.

https://www.nctsn.org/what-is-child-trauma/trauma-types/disasters/earthquake-resources

National Planning Commission. (2015). *Post disaster needs assessment :Volume A*. https://www.npc.gov.np/images/category/PDNA_Volume_A.pdf

Nepal, G. of. (2014). *Population monograph of Nepal (Volume II)*. https://nepal.unfpa.org/en/publications/population-monograph-nepal-2014-volume-ii-social-demography

Neria, Y., Nandi, A., & Galea, S. (2008). Post-traumatic stress disorder following disasters: A systematic review. *Psychological Medicine*, *38*(4), 467–480. https://doi.org/10.1017/S0033291707001353

Oncu, E. C., Akman, B., Guler, T., & Karaaslan, T. (2009). A report on traumatized and non traumatized children's human figure drawings reflecting emotional effects of disastrous conditions. *Australasian Journal of Disaster and Trauma Studies*, *1*. http://antioch.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,cpid&custid=s3217437&db=psyh&AN=2010-16810-003&site=ehost-live&scope=site&scope=cite

Oncu, E. C., & Wise, A. M. (2010). The effects of the 1999 Turkish earthquake on young children: Analyzing traumatized children's completion of short stories. *Child Development*, *81*(4), 1161–1175. https://doi.org/10.1111/j.1467-8624.2010.01460.x

Orr, P. P. (2007). Art therapy with children after a disaster: A content analysis. *The Arts in Psychotherapy*, *34*(4), 350–361. https://doi.org/10.1016/j.aip.2007.07.002

Patel, V., Flisher, A. J., Nikapota, A., & Malhotra, S. (2008). Promoting child and adolescent mental health in low and middle income countries. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *49*(3), 313–334. https://doi.org/10.1111/j.1469-

7610.2007.01824.x

Pathak, R., Sharma, R. C., Parvan, U. C., Gupta, B. P., Ojha, R. K., & Goel, N. (2011). Behavioural and emotional problems in school going adolescents. *The Australasian Medical Journal*, *4*(1), 15–21. https://doi.org/10.4066/AMJ.2011.464

Perry, B. D., & Szalavitz, M. (2007). *The boy who was raised as a dog: And other stories from a child psychiatrist's notebook* (First). Basic Books.

Pfefferbaum, B., Newman, E., & Nitiéma, P. (2016). Current evidence for selecting disaster interventions for children and adolescents. *Current Treatment Options in Psychiatry*, *3*(2), 192–205. https://doi.org/10.1007/s40501-016-0079-4

Pfefferbaum, B., & North, C. S. (2008). Research with children exposed to disasters. *International Journal of Methods in Psychiatric Research*, *17*(S2), S49–S56. https://doi.org/10.1002/mpr.271

Piccardi, L., Palmiero, M., Nori, R., Baralla, F., Cordellieri, P., D'Amico, S., & Giannini, A. M. (2017). Persistence of traumatic symptoms after seven years: Evidence from young individuals exposed to the L'Aquila earthquake. *Journal of Loss and Trauma*, *22*(6), 487–500. https://doi.org/10.1080/15325024.2017.1328243

Piyasil, V., Ketuman, P., Plubrukarn, R., Jotipanut, V., Tanprasert, S., Aowjinda, S., & Thaeeromanophap, S. (2007). Post traumatic stress disorder in children after tsunami disaster in Thailand: 2 years follow-up. *Journal of the Medical Association of Thailand*, *90*(11), 2370–2376. http://www.ncbi.nlm.nih.gov/pubmed/18181322

Piyasil, V., Ketumarn, P., Prubrukarn, R., Ularntinon, S., Sitdhiraksa, N., Pithayaratsathien, N., Pariwatcharakul, P., Lerthattasilp, T., Chinajitphant, N., Liamwanich, K., Wadchareeudomkarn, N., Sookatup, J., Wanlieng, T., Yongpitayapong, C.,

Paveenchana, P., Tasri, L., Chaiyakun, P., & Sanguanpanich, N. (2011). Post-traumatic stress disorder in children after the Tsunami disaster in Thailand: A 5-year follow-up. *Journal of the Medical Association of Thailand*, *94*(3), S138-44. http://www.ncbi.nlm.nih.gov/pubmed/22043767

Qi, W., Gevonden, M., & Shalev, A. (2016). Prevention of post-traumatic stress disorder after trauma: Current evidence and future directions. *Current Psychiatry Reports*, *18*(2), 20. https://doi.org/10.1007/s11920-015-0655-0

Quaglietti, S. (2018). Using photography to explore recovery themes with veterans. *Journal of Creativity in Mental Health*, *13*(2), 220–230. https://doi.org/10.1080/15401383.2018.1425174

Rankanen, M. (2016). Clients' experiences of the impacts of an experiential art therapy group. *The Arts in Psychotherapy*, *50*, 101–110. https://doi.org/10.1016/j.aip.2016.06.002

Sarid, O., & Huss, E. (2010). Trauma and acute stress disorder: A comparison between cognitive behavioral intervention and art therapy. *Arts in Psychotherapy*, *37*(1), 8–12. https://doi.org/10.1016/j.aip.2009.11.004

Schneider, S. J., Grilli, S. F., & Schneider, J. R. (2013). Evidence-based treatments for traumatized children and adolescents. *Current Psychiatry Reports*, *15*, 1–9. https://doi.org/10.1007/s11920-012-0332-5

Shakya, S. (2019). *Emotional and behavioral problems of Nepalese children and adolescents : Development and validation of an assessment instrument*. Tribhuvan University.

Sharma, A., & Kar, N. (2019). Posttraumatic stress, depression, and coping following the

2015 Nepal earthquake: A study on adolescents. *Disaster Medicine and Public Health Preparedness*, *13*(2), 236–242. https://doi.org/10.1017/dmp.2018.37

Sherchan, S., Samuel, R., Marahatta, K., Anwar, N., Ommeren, M. H. ., & Ofrin, R. (2017). Post-disaster mental health and psychosocial support: Experience from the 2015 Nepal earthquake. *WHO South-East Asia Journal of Public Health*, *6*(1), 22–29.

Spell, A. W., Kelley, M. Lou, Wang, J., Self-Brown, S., Davidson, K. L., Pellegrin, A., Palcic, J. L., Meyer, K., Paasch, V., & Baumeister, A. (2008). The moderating effects of maternal psychopathology on children's adjustment post–hurricane Katrina. *Journal of Clinical Child & Adolescent Psychology*, *37*(3), 553–563. https://doi.org/10.1080/15374410802148210

Talwar, S. (2007). Accessing traumatic memory through art making: An art therapy trauma protocol (ATTP). *The Arts in Psychotherapy*, *34*(1), 22–35. https://doi.org/10.1016/j.aip.2006.09.001

Terr, L. C. (1991). Childhood traumas: An outline and overview. *American Journal of Psychiatry*, *148*(1), 10–20. https://doi.org/10.1176/ajp.148.1.10

Tomonari, R. F. D. (n.d.). *Stages of growth child development*. N.D. https://education.stateuniversity.com/pages/1826/Child-Development-Stages-Growth.html

Ugurlu, N., Akca, L., & Acarturk, C. (2016). An art therapy intervention for symptoms of post-traumatic stress, depression and anxiety among Syrian refugee children. *Vulnerable Children and Youth Studies*, *11*(2), 89–102. https://doi.org/10.1080/17450128.2016.1181288

van der Kolk, B. A. (2003). The neurobiology of childhood trauma and abuse. *Child and*

Adolescent Psychiatric Clinics of North America, *12*(2), 293–317. https://doi.org/10.1016/S1056-4993(03)00003-8

Van Lith, T. (2016). Art therapy in mental health: A systematic review of approaches and practices. *The Arts in Psychotherapy*, *47*, 9–22. https://doi.org/10.1016/j.aip.2015.09.003

West-Olatunji, C., & Yoon, E. (2013). Culture-centered perspectives on disaster and crisis counseling. *Journal of Asia Pacific Counseling*, *3*(1), 35–43. https://doi.org/10.18401/2013.3.1.3

Westrhenen, N. van, & Fritz, E. (2014). Creative arts therapy as treatment for child trauma: An overview. *The Arts in Psychotherapy*, *41*(5), 527–534. https://doi.org/10.1016/j.aip.2014.10.004

Westrhenen, N. van, Fritz, E., Oosthuizen, H., Lemont, S., Vermeer, A., & Kleber, R. J. (2017). Creative arts in psychotherapy treatment protocol for children after trauma. *The Arts in Psychotherapy*, *54*, 128–135. https://doi.org/10.1016/j.aip.2017.04.013

World Health Organization. (2005). *Child and adolescent mental health policies and plans*. https://apps.who.int/iris/handle/10665/43068

Xu, J., Dai, J., Rao, R., & Xie, H. (2016). The association between exposure and psychological health in earthquake survivors from the Longmen Shan Fault area: The mediating effect of risk perception. *BMC Public Health*, *16*, 1–14. https://doi.org/10.1186/s12889-016-2999-8

Ying, L., Wu, X., Lin, C., & Jiang, L. (2014). Traumatic severity and trait resilience as predictors of posttraumatic stress disorder and depressive symptoms among adolescent survivors of the Wenchuan earthquake. *PLoS ONE*, *9*(2), 1–7.

https://doi.org/10.1371/journal.pone.0089401

Appendix A

Parent consent form

I, Nishtha Shrestha, a PhD student of Christ University, Bangalore request you to participate in my study titled "Efficacy of Art Based Interventions for Emotional Problems among Children Affected by Earthquake in Nepal". This research is conducted under the supervision of Dr.Baiju Gopal, Professor, Christ University, Bangalore, India. Please read the information provided below and provide your consent of participation.

Purpose of the study and what you will be asked to do

The purpose of the study is to explore the role of art in dealing with the emotional problems in children affected by earthquake in Nepal. If you choose to give permission on behalf of your child, you will be asked to complete a form which contains questions about the behavior of your child. Following this, your child may be asked to participate in art sessions and an interview after the completion of these art sessions. The interview will be audio-recorded and transcribed for further analysis. The art works of your child will be used for the research purposes.

Voluntary Participation

The participation in this research is voluntary. There is no penalty for refusing to participate in this study. At any point of the research if you wish to withdraw your child from the research, you can do so without any questions being asked.

Confidentiality of your information

The information collected in the course of the research will be kept confidential. The demographic details, art works of your child will be coded such that the third party will not be able to track your as well as your child's identity. The consent form that contains your name, forms about the behavior of your child and the art works of your child will be stored in a locked cabinet which will be accessed only by the researcher. The transcripts of the interview will be stored in the password-protected laptop of the researcher. The information which reveals the personal details will not be used during the presentations and the publications of the research data. The data collected will be stored for the duration of minimum 3 years.

Benefits and Risks

The participation in this research will allow you to become aware about the problems of your child. The art sessions offered in this research is targeted towards helping the children handle the problems and teach them skills which are applicable in their daily life. The findings of the study will contribute towards the improvement of mental health of the children in Nepal by providing a realistic picture of the problems of the children. Participation in this research

does not entail risks beyond what one experiences in everyday life. It is possible that some of the children might find the experience stressful. If you observe such behavior in your children or they mention instances where they are having difficulty being a part of the art sessions or the interview, please feel free to talk to the researcher or choose to discontinue from the research.

Who to contact with questions

If you have any questions about this research, you may contact the researcher (e-mail: nishtha.shrestha@res.christuniversity.in or phone: 977-9841497514 or Dr. Baiju Gopal (e-mail: baiju.gopal@christuniversity.in).

Thank you for your help.

By signing my name below, I am indicating that I have understood the information provided about the research project mentioned above, and I have been satisfied with the answers provided to my questions.

I acknowledge that I am 18 years or older and I voluntarily agree to participate.

I give my permission to include my child in the art sessions.

I give my permission for the researcher to audio-record the interviews of my child.

_____

Signature of participant Date

_____

Signature of primary researcher Date

Appendix B

Institution consent form

I, Nishtha Shrestha, a PhD student of Christ University, Bangalore request the permission of your institution for my study titled "Efficacy of Art Based Interventions for Emotional Problems among Children Affected by Earthquake in Nepal". This research is conducted under the supervision of Dr.Baiju Gopal, Professor, Christ University, Bangalore, India. Please read the information provided below and provide the consent.

Purpose of the study and what you will be asked to do

The purpose of the study is to explore the role of art in dealing with the emotional problems in children affected by earthquake in Nepal. If you choose to give permission on behalf of the institution, I would approach the students and their parents to participate in my study for which I will take their consent for the same. I would also require a room in your institution incase the art classes and the interview has to be conducted for the students.

Voluntary Participation

The participation in this research is voluntary. There is no penalty for refusing to participate in this study. At any point of the research if you wish to withdraw from the research, you can do so without any questions being asked.

Confidentiality of your information

The information collected in the course of the research will be kept confidential. The demographic details, art works of the students will be coded such that the third party will not be able to identify your students and the school. The consent form that contains your name, forms about the behavior of the students and the art works of the students will be stored in a locked cabinet which will be accessed only by the researcher. The transcripts of the interview will be stored in the password-protected laptop of the researcher. The information which reveals the personal details will not be used during the presentations and the publications of the research data. The data collected will be stored for the duration of minimum 3 years.

Benefits and Risks

The participation in this research will give information about the problems being faced by the students of your institution. The art sessions offered in this research is targeted towards helping the children handle the problems and teach them skills which are applicable in their daily life. The findings of the study will contribute towards the improvement of mental health of the children in Nepal by providing a realistic picture of the problems of the children. Participation in this research does not entail risks beyond what one experiences in everyday life. It is possible that some of the children might find the experience stressful. If you observe

such behaviour in the students or they mention instances where they are having difficulty being a part of the art sessions or the interview, please feel free to talk to the researcher or choose to discontinue from the research.

Who to contact with questions

If you have any questions about this research, you may contact the researcher (e-mail: nishtha.shrestha@res.christuniversity.inor phone: 977-9841757586 or Dr. Baiju Gopal (e-mail: baiju.gopal@christuniversity.in)

Thank you for your help.

By signing my name below, I am indicating that I have understood the information provided about the research project mentioned above and I have been satisfied with the answers provided to my questions. On behalf of the institution, I voluntarily provide my consent.

Name of the participant: Date:

Signature:

Seal of the institution:

Signature of primary researcher: Date:

Appendix C

Child assent form

This is a letter inviting you to participate in a research study undertaken by Ms.Nishtha Shrestha, Christ University, Bangalore. The purpose of this study is to explore how art can be used to handle the emotional problems faced after the earthquake. The study has been approved by the Institutional Review Board of Christ University, which is the committee that oversees protection of human subjects in research.

What you will be asked to do

If you choose to participate, you will be asked to complete a form which contains questions about the earthquake. You may be asked to be a part of the art sessions that will focus on your experiences of the earthquake. After these sessions, you may be asked to participate in an interview where you will be asked questions about the art activities, your feelings during the sessions etc. The interview will be audio recorded in order to be transcribed later.

Voluntary participation

Participation in this research is voluntary, that is, you can decide whether you want to participate or not.

Right to withdraw and how to withdraw

If at any time during the art sessions and the interview you would like the researcher to stop, you are free to do so. If you would like to withdraw from the study, just tell the researcher to stop without any clarification. There will be no penalty for leaving the study.

Benefits

Participation in this research may provide you with an opportunity to think about your moods and feelings. It is a platform to share your thoughts and learn skills which will be helpful to you in the future.

Risks

Participating in this study does not involve risks greater than those one encounters in daily life. It is possible that you may experience emotional discomfort when you are a part of the art activities or during the interview. If any situation makes you uncomfortable, you can choose to avoid the activity or question without any penalty.

Confidentiality of your information

The information that you provide will be kept confidential. Only the researcher will have an access to your name and contact information. Apart from your signed consent form, all other materials (forms, drawings, audio recording of the interview, and transcript) will be coded. When the interview is transcribed, any identifying information that you mention (e.g., names of people, places) will be removed in the typed transcript. Audio recordings and transcripts

will be saved on a password-protected computer and consent forms will be kept in a locked cabinet.

What will be done with the results

The results will be shared at conferences or sent to the journals without any identifying information (i.e., names).The data will be used to help other children who may be in need of help after the earthquake.

Who to contact with questions

If you have any questions regarding this study, please contact Ms.Nishtha Shrestha(E-mail: nishtha.shrestha@res.christuniversity.in or phone: 977-9841757586) or Dr. Baiju Gopal (e-mail: baiju.gopal@christuniversity.in)

Thank you for your help.

By signing my name below, I am indicating that I have read the information provided about the research project mentioned above and I voluntarily agree to participate. I give my permission for the researcher to store my drawings, to audio-record my interview and to quote from my interview responses, verbatim, in part or in whole in any reports of this research.

I understand that any quotes from my interview responses will not contain identifying information such as my own or someone else's name. Prior to completion of this research or publication of any related articles, I am free to withdraw this consent for any reason. There is no penalty associated with withdrawing this consent.

Name of participant: Date:

Class:

Signature of primary researcher: Date:

Appendix D

Level of exposure

Please answer each question by indicating a number from 1 to 4 that describes your feelings best based on the scale below. Please be sure to answer all questions.

1-None

2-Somewhat

3-Medium(reasonable)

4-A lot

A. .....How much damage did the earthquake cause to the area where you were when the earthquake happened?

B. .....How much damage did the earthquake cause to your house?

C. .....How much stress did you experience by losing family members and/or close friends during the earthquake?

D. .....How much stress did you experience because your family members and/or close friends were injured by the earthquake?

E. .....How much stress did you experience because you were injured by the earthquake?

F. .....How much of your daily life has been inconvenienced as a result of the earthquake?

Appendix E

Strengths and Difficulties Questionnaire

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft. Please give your answers on the basis of the child's behaviour over the last six months.

Child's Name .....Male/Female

.....

Date of Birth.....

	Not True	Somewhat True	Certainly true
Considerate of other people's feelings			
Restless, overactive, cannot stay still for long			
Often complains of headaches, stomach-aches or sickness			
Shares readily with other children (treats, toys, pencils etc.)			
Often has temper tantrums or hot tempers			
Rather solitary, tends to play alone			
Generally obedient, usually does what adults request			
Many worries, often seems worried			
Helpful if someone is hurt, upset or feeling ill			
Constantly fidgeting or squirming			
Has at least one good friend			
Often fights with other children or bullies them			
Often unhappy, down-hearted or tearful			
Generally liked by other children			
Easily distracted, concentration wanders			

Nervous or clingy in new situations, easily loses confidence			
Kind to younger children Often lies or cheats			
Picked on or bullied by other children			
Often volunteers to help others (parents, teachers, other children)			
Thinks things out before acting			
Steals from home, school or elsewhere			
Gets on better with adults than with other children			
Many fears, easily scared			
Sees tasks through to the end, good attention span			
Do you have any other comments or concerns?			

Appendix F

Art-based intervention

Session	Theme	Goal
1	Ice-breaker session	To make the participants comfortable and develop feelings of trust in the group
2	Group activity(Mural)	To develop a bond among the group members
3,4	Teaching emotions through art	To teach them to be aware and understand their feelings
5,6,7	Past, Present and future	To develop a trauma narrative
8	Learning from trauma	To encourage children to identify the lessons learnt from the earthquake
9	Goodbye activity	To provide a closure to the children and share their experiences about the intervention

Appendix G

Interview guide

1. How was the experience being a part of the art classes?
2. How did you feel when you were involved in the art activities?
3. Which activity/drawing did you like the most? Why?
4. Can you describe your experience working with art materials?
5. Group
    i. What is group work?
    ii. What is individual work?
    iii. How did you feel in group work?
    iv. How did you feel in individual work?
    v. How comfortable did you feel sharing your stories in the group?
6. Can you describe your experience working with the therapist?
7. What are all the activities you have done in the art class? Can you explain it.
8. What were the aspects that helped you during the art sessions?
9. What were the aspects that you found difficult to deal with during the art sessions?
10. In what way has talking about earthquake through drawings helped you? Can you tell me when did you find it helpful/ Can you give me some examples?
11. What were the goals you set for yourself when you started the art class?
12. Did the art activities help you achieve the goals? If yes how?
13. How do you feel now if you compare yourself before the art activities?
14. Can you describe the situation where you experienced this change?
15. What did you learn from the art sessions?
16. What were your fears before the start of the art sessions?

17. How did you resolve your fears?
18. In the future, what changes in the art sessions do you think would be helpful?
19. What did you discover about yourself during the art sessions?
20. In what situation you would like to use art in the future?
21. Based on your experience about the art classes, what impact do you think it will have on children?
22. After the experiencing how earthquake feels and the damages it can cause, have you brought any changes to your life?
23. What are the post earthquake incidents that helped you to become a strong person?
24. Have you seen any change in your fear about earthquake after coming to art class?
25. Do you think you are more prepared to deal with earthquakes after the art sessions?
26. How do you feel when there is an aftershock of the earthquake?
27. Does the memories of the earthquake affect you when there is an aftershock?
28. What do you think you will do now when you experience an aftershock?
29. When a difficult situation comes in your life how do you deal with it?
30. If I meet you after 5 years, where do you see yourself?

Appendix H

Topic guide for teachers

1. Academic level of the child
2. Interest in classwork and homework
3. Behaviour in the classroom
4. Interactions with friends
5. School attendance
6. Level of parental involvement
7. Family background of the child
8. Teachers impression of the child

Appendix I

Proof of validation from experts

jennie kristel Apr 4, 2018, 11:54 PM

to me

Hi Nishitha;

If you are doing a test assessment, the only way for the assessment to prove itself is if you are absolutely consistent in every way with everyone taking the test.
So in answer to your question about telling the time limit, you have to decide at the outset whether that is something participants will be told. "You will have 20 minutes to complete this task" It would be fair to give them that information.
No everyone might complete the drawing. The therapists can decide beforehand if there would be points awarded for having done specific parts of the test.... or not. If you are doing the HTP, Points would be awarded for the house, windows, doors etc.
Again, are absences allowed? If not, then the person may not be able to participate. If an absence happens for unexpected reasons, then that should be noted. What was done,what wasn't. Points awarded accordingly. You will need to expect people to misbehave a bit. So there will need to be a variant course graph to show who successfully completed the test, those who didn't. Of those who didn't, what did people do. You might get interesting info that way. Otherwise, you need to keep to only those who succeeded. You then can say, 10 people began and 8 people fully completed the tasks. This assessment will be based on the 8 who completed."
If someone finishes early you can offer another piece of paper to do a free drawing if you want them to stay in the room and quiet. If they are alone yu can let them leave. What are your expectations of how long they will take? You might well have some who need more time. if people consistenly end early or need more time(don't complete the task due to lack of time) that will be important information for you.
I hope this helps
Jennie

Flow Wed, Apr 11, 2018, 9:38 PM

to lily900, me

Detect language › English Translate message Turn off for: Korean

Dear Sarah & Nishtha
This is my comments about your paper work.
First of all, I was so impressed that you've tried to help children in crisis of the earthquake in India.
So I am glad to let me know your art intervention program.
I hope that I will be of some help for that program.
As I told you on yesterday, I wrote my comments in Korean as follws.
Sarah, Please help her understand it to Nishtha. Thank you!

Kishor Adhikari Thu, Apr 19, 2018, 11:07 AM

to me

Dear Nistha,
PFA my comments.

Regards

Kishor

Kishor Adhikari Thu, Apr 19, 2018, 11:09 AM

to me

2 Attachments

Intervention_nistha...

Interview_nistha.d...

Appendix J

Ethical approval from CHRIST (Deemed to be University)

CHRIST
(DEEMED TO BE UNIVERSITY)
BENGALURU · INDIA

CENTRE FOR RESEARCH

CU: RCEC: APPROVAL: 02/18 02 February 2018

Ms Nishtha Shrestha
PhD Scholar,
Reg No 1630093
Department of Psychology

Sub: Ethical Approval of the Study Titled "Art as a Medium for Dealing with Emotional Problems among Children Affected by Earthquake in Nepal".

The Institutional Ethics committee has reviewed your application for ethical clearance for the Study titled "Art as a Medium for Dealing with Emotional Problems among Children Affected by Earthquake in Nepal".

The committee has cleared your proposal for data collection after accessing the ethical aspects.

Sincerely,

T. Sse ge

Tony Sam George
(Member Secretary to Ethics Committee)
Additional Director
Center for Research
CHRIST (Deemed to be University),
Bengaluru

Hosur Road, Bengaluru - 560 029, Karnataka, India. www.christuniversity.in
Tel: +91 80 4012 9600 Fax: +91 80 4012 9000 email: mail@christuniversity.in

Appendix K

Ethical approval from Nepal Health Research Council

Government of Nepal
Nepal Health Research Council (NHRC)
Estd. 1991

Ref. No.: 2960

13 March 2018

Ms. Nishtha Shrestha
Principal Investigator
Christ (Deemed to be University)
India

Ref: **Approval of thesis proposal** entitled **Art as a Medium for Dealing with Emotional Problems among Children Affected by Earthquake in Nepal**

Dear Ms. Shrestha,

It is my pleasure to inform you that the above-mentioned proposal submitted on **6 March 2018** (**Reg. no. 92/2018**) has been approved by Nepal Health Research Council (NHRC) National Ethical Guidelines for Health Research in Nepal, Standard Operating Procedures Section 'C' point no. 6.3 through Expedited Review Procedures.

As per NHRC rules and regulations, the investigator has to strictly follow the protocol stipulated in the proposal. Any change in objective(s), problem statement, research question or hypothesis, methodology, implementation procedure, data management and budget that may be necessary in course of the implementation of the research proposal can only be made so and implemented after prior approval from this council. Thus, it is compulsory to submit the detail of such changes intended or desired with justification prior to actual change in the protocol. Expiration date of this proposal is **May 2020.**

If the researcher requires transfer of the bio samples to other countries, the investigator should apply to the NHRC for the permission. The researchers will not be allowed to ship any raw/crude human biomaterial outside the country; only extracted and amplified samples can be taken to labs outside of Nepal for further study, as per the protocol submitted and approved by the NHRC. The remaining samples of the lab should be destroyed as per standard operating procedure, the process documented, and the NHRC informed.

Further, the researchers are directed to strictly abide by the National Ethical Guidelines published by NHRC during the implementation of their research proposal and **submit progress report in between and full or summary report upon completion.**

As per your thesis proposal, the total research budget is **NRs 24,000** and accordingly the processing fee amounts to **NRs 10,000.** It is acknowledged that the above-mentioned processing fee has been received at NHRC.

If you have any questions, please contact the Ethical Review M & E Section at NHRC.

Thanking you,

Prof. Dr. Anjani Kumar Jha
Executive Chairperson

Tel: +977 1 4254220, Fax: +977 1 4262469, Ramshah Path, PO Box: 7626, Kathmandu, Nepal
Website: http://www.nhrc.gov.np, E-mail: nhrc@nhrc.gov.np

Appendix L

List of publications

Shrestha, N., & Gopal, B. (2021). Psychological problems among children three years after the earthquake in Nepal. *Journal of Indian Association for Child and Adolescent Mental Health*, *17*(2), 12–34.

Shrestha, N., & Pereira, M. (2020). Impact of a school-based sexual abuse prevention workshop on the knowledge and attitude of Indian children. *Sambodhi*, *43*(01), 31–37.

Shrestha, N., & Gopal, B.(n.d.). Three Years After the Earthquake: An Exploration of the Emotional Problems Among Children in Nepal. *Disaster Medicine and Public Health Preparedness* (Under 3rd peer review)